Question Nu: 1

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.1.01

Description: Knowledge of conduct of operations requirements.

Quest:

What are the minimum requirements for personnel within the "at the controls" area whenever fuel is in the reactor?

A. One licensed individual (RO or SRO)

B. One SRO

C. One RO and one SRO

D. Two licensed individuals (RO or SRO)

Answe: A

CFR Sect: 41.10 / 45.13

Higher Lev: ☐

RO: ☑ 3.7

SRO: ☑ 3.8

LP Number: 0762-08

LP Objective: 10.01

Operations and STA staffing requirements (SRO only)

Question So: New

Referen: SO-O-1, section 5.10.2.D.2

Attachme: none

Commen:

Question Nu: 2

System/Mod: 000000 Stem:

Generic Knowledges and Abilities

KANo: 2.1.20 Description: Ability to execute procedure steps.

Quest:

Who must give permission for a temporary level of use downgrade for a procedure that is repeatedly performed by the same person on the same day?

A. The Operations Manager or an Operations Supervisor.

B. The Shift Manager.

C. The Control Room Supervisor.

D. The Shift Manager or the Control Room Supervisor.

Answe: D CFR Sect: 41.10 / 43.5 / 45.12

Higher Lev: ☐ RO: ☑ 4.3 SRO: ☑ 4.2

LP Number: 0762-01 LP Objective: 02.00

STATE some of the activities, covered by Standing Orders, which require written procedures per Regulatory Guide 1.33.

Question So: New

Referen: SO-O-1 page 66

Attachme: None

Commen:

Question Nu: 3

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.1.25

Description: Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.

Quest:

The reactor has tripped one hour ago due to a combination steam line break and tube rupture event. The operators completed EOP-00 and are now in EOP-20. The TSC and EOF have been manned. DG1 is carrying 2430KW and 395 amps and is the only available AC power source. The outside temperature is 100°F. The diesels are being cooled by a Glycol-water mixture. FW-10 is running and capable of providing 260 gpm. The TSC has recommended that FW-6 (250 HP) be used instead of FW-10 to minimize offsite release.

Do you concur with the TSC recommendation?

A. No, because the current draw for FW-6 would overload DG-1 by exceeding the DG-1 loading curve.

B. No, because the starting current will exceed the rating on the diesel generator

C. No, because FW-6 does not have adequate capacity to remove decay heat

D. Yes. FW-6 is the better choice for this situation

Answe: A

CFR Sect: 41.10 / 43.5 / 45.12

Higher Lev: ☑ RO ☑ 2.8 SRO ☑ 3.1

LP Number: 0713-05

LP Objective: 01.06

Given TDB Figure III.26.A, be able to predict if diesel loading limits will be exceeded when loads are restarted following a loss of off-site power

Question So: Modified LR-EOP-20-RO 008

Referen: TDB Figure 3.26.A

Attachme: TDB Figure 3.26.A

Commen: Reworded for clarification 6/12/01

Question Nu: 4

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.1.33

Description: Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

Quest:

In which one of the following situations, could a technical specification required system still be considered operable?

A. A required pump has a failed seal.

B. A required pump is in a room that is hotter than its qualification temperature.

C. A required instrument channel was tested using a voltmeter that was out of calibration.

D. A required instrument channel's surveillance test was not conducted before the drop dead date

Answe: C

CFR Sect: 43.2 / 43.3 / 45.3

Higher Lev: ☑ RO ☑ 3.4 SRO ☑ 4.0

LP Number: 0762-08

LP Objective: 05.00

Given a copy of Technical Specifications, APPLY the requirements to a given condition covered by an LCO.

Question So: New

Referen: SO-O-1 section 5.2

Attachme: None

Commen:

NRC Comment - Is drop dead date defined?
"Drop dead date" is used in standing order but is not defined.
OK as is.

Question Nu: 5

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.2.01

Description: Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.

Quest:

Which one of the following plant operations may be performed by the RO without permission of the Shift Manager or the Control Room Supervisor?

A. Emergency boration

B. Inserting group "N" rods

C. Adding water to maintain 100% power

D. Rinsing in an ion exchanger

Answe: A

CFR Sect: 45.1

Higher Lev: ☐

RO: ☑ 3.7

SRO: ☐ 3.6

LP Number: 0717-03

LP Objective: 01.00

Use the Emergency Boration AOP to mitigate the consequences of an uncontrollable or unexplained positive reactivity addition.

Question So: New

Referen: SO-O-1 5.14.2.B

Attachme: None

Commen:

Question Nu: 6

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.2.07

Description: Knowledge of the process for conducting tests or experiments not described in the safety analysis report.

Quest:

Which one of the following situations would require NRC permission before conducting a proposed test?

A. Any test not described in the USAR.

B. Any test that makes tech spec required equipment inoperable during the test

C. Any test which may increase the probability of an event analyzed in the USAR.

D. Any test conducted by non-licensed personnel

Answe: C

CFR Sect: 43.3 / 45.13

Higher Lev: ☐

RO: ☐ 2.0

SRO: ☑ 3.2

LP Number: 0751-04

LP Objective: 01.00

STATE the purpose of Title 10, Part 2 of the Code of Federal Regulations and DISCUSS the various actions that can be taken by the Nuclear Regulatory Commission in regards to violations of this part.

Question So: New

Referen: 10 CFR 50.59

Attachme: None

Commen:

Question Nu: 7

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.2.17

Description: Knowledge of the process for managing maintenance activities during power operations.

Quest

According to standing Order M-101, who has the responsibility for performing a risk assessment for emergent maintenance activities when the Work Week Manager is unavailable?

A. The Maintenance Rule Coordinator

B. The Shift Manager

C. The System Reliability Group Supervisor

D. The Shift Technical Advisor

Answe: D

CFR Sect: 43.5 / 45.13

Higher Lev: ☐

RO: ☐ 2.3

SRO: ☑ 3.5

LP Number: 0762-01

LP Objective: 01.00

STATE the major sections of the Standing Orders.

Question So: New

Referen: SO M-101 page 11

Attachme: None

Commen:

Question Nu: 8

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.2.22

Description: Knowledge of limiting conditions for operations and safety limits.

Quest:

Which one of the following is a "Safety Limit" as described in the Fort Calhoun Station Technical Specifications?

A. T-cold must not exceed 542F

B. Peak Linear Heat Generation rate must not exceed 15.5 kw/ft

C. RCS Pressure must not exceed 2750 psia

D. Containment pressure must not exceed 60 psig

Answe: C

CFR Sect: 43.2 / 45.2

Higher Lev: ☐

RO: ☑ 3.4

SRO: ☑ 4.1

LP Number: 0762-08

LP Objective: 03.00

STATE the two (2) safety limits and the basis for each.

Question So: New

Referen: FCS Technical Specifications

Attachme: None

Commen:

Question Nu: 9

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.2.23

Description: Ability to track limiting conditions for operations.

Quest:

Which one of the following situations involving equipment required by technical specifications does NOT require that the equipment be logged as inoperable?

A. The control room switch for a pump is placed in the Pull-To-Lock position but its breaker remains operable.

B. An RPS channel is placed in bypass for less than 1 hour and restored to service during the same shift

C. A fan is made inoperable as part of a planned surveillance test

D. Instrument air is isolated to a fail closed air operated containment isolation valve during a calibration

Answe: D

CFR Sect: 43.2 / 45.13

Higher Lev: ☑

RO: ☐ 2.6

SRO: ☑ 3.8

LP Number: 0762-08

LP Objective: 05.00

Given a copy of Technical Specifications, APPLY the requirements to a given condition covered by an LCO.

Question So: New

Referen: SO-G-100 page 3

Attachme: None

Commen:

Question Nu: 10

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.2.24

Description: Ability to analyze the affect of maintenance activities on LCO status.

Quest:

What is the minimum (underlined) level of testing required following electrical breaker preventive maintenance?

A. The breaker must be visually inspected.

B. The breaker must be operated in the electrical shop.

C. The breaker must be operated in the test position.

D. The breaker must be operated to power its load.

DELETED POST-EXAM

CFR Sect: 43.2 / 45.13

Higher Lev: ☐

RO: ☐ 2.6

SRO: ☑ 3.8

LP Number: 0762-08

LP Objective: 05.00

Given a copy of Technical Specifications, APPLY the requirements to a given condition covered by an LCO.

Question So: New

Referen: SO-O-1 page 13

Attachme: None

Commen: Underlined word minimum as a result of validation comment 6/17/01 QUESTION DELETED

Question Nu: 11

System/Mod: 000000 Stem:

Generic Knowledges and Abilities

KANo: 2.3.02 Description: Knowledge of facility ALARA program.

Quest

The RWP Surveillance and ALARA coordinator has determined that an ALARA job briefing is required for performance of a job in the RCA. Which one of the following restrictions apply until all affected workers attend an ALARA job briefing?

A. The affected workers will not be issued TLDs

B. The affected workers will not be allowed to sign the RWP

C. The affected workers will not be allowed enter the RCA

D. Work on the job may not begin.

Answe: B CFR Sect: 41.12 / 43.4 / 45.9 / 45.10

Higher Lev: ☐ RO: ☑ 2.5 SRO: ☑ 2.9

LP Number: 1924-03B LP Objective: 01.00

Given a copy of the Radiation Protection procedures, DEFINE the following types of controlled, contaminated, and radiation areas at Fort Calhoun Station and EXPLAIN the controls, posting requirements, access requirements, and limits for each

Question So: Modified 1995 exam question 66

Referen: RP-301

Attachme: None

Commen

Procedure change required change in correct answer.
NRC Comment: C,D Also appear to be correct.

C incorrect - Affected workers may enter RCA under a different RWP
D incorrect - Work on the job may begin, just not with these workers
OK to use as is.

Question Nu: 12

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.3.03

Description: Knowledge of SRO responsibilities for auxiliary systems that are outside the control room (e.g., waste disposal and handling systems).

Quest:

What is the Shift Managers responsibility for pre-planned work in the switchyard per NOD-QP-36, "Control of Switchyard Activities at Fort Calhoun Station"?

A. Determine if proposed work can be accomplished without adversely affecting plant operation.

B. Inform the Security Shift Supervisor to provide an escort for the EOD personnel while they are in the switchyard

C. Have the EOD personnel contact the Plant Manager for permission to enter the switchyard

D. Provide an Operator to assist in switchyard activities

Answe: A

CFR Sect: 43.4 / 45.10

Higher Lev: ☐ RO ☐ 1.8 SRO ☑ 2.9

LP Number: 0713-01

LP Objective: 01.06e

Given a copy of the procedure NOD-QP-36, Control of SWYD Activities at FCS, the student will be able to perform the following: Describe how access to the switchyard is obtained for scheduled and non-scheduled activities.

Question So: Modified — 1997 exam question 87

Referen: NOD-QP-36

Attachme: None

Commen:

Question Nu: 13

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.3.11

Description: Ability to control radiation releases.

Quest:

During the later part of cycle 19, condenser evacuation was routed to the auxiliary building stack, Why was that done?

A. To provide filtering of radioactive noble gasses in case of a primary to secondary leak.

B. To prevent an unmonitored release if RM-057 went offscale.

C. To allow for modification of the normal condenser evacuation ducting

D. To improve condenser vacuum due to air in-leakage

Answe: B

CFR Sect: 45.9 / 45.10

Higher Lev: ☐

RO: ☑ 2.7

SRO: ☐ 3.2

LP Number: 1950-04

LP Objective: 03.01d

Condenser Air Ejector Monitor (RM-057)

Question So: New

Referen: CE STM page 13

Attachme: None

Commen:

Question Nu: 14

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.4.08

Description: Knowledge of how the event-based emergency/abnormal operating procedures are used in conjunction with the symptom-based EOPs.

Quest:

You have entered EOP-06 due to a plant event. In EOP-06, there is a note that tells you to go to EOP-20, HR-4 if plant parameters reach certain values. It is your judgment that these plant parameters will reach these values. How do you handle this situation procedurally?

A. Go to the section of EOP-20, HR-4 immediately to ensure the transition is not missed.

B. Transition to EOP-20, Initiate HR-4 actions when plant parameters reach the specified values. Stay in EOP-20 after performing the steps of section HR-4

C. Transition to EOP-20, Initiate HR-4 actions when plant parameters reach the specified values. Return to EOP-06 after the actions in EOP-20, HR-4 are complete.

D. Ensure that all safety functions are satisfied in EOP-06 prior to transitioning to EOP-20, HR-4.

Answe: B

CFR Sect: 41.10 / 43.5 / 45.13

Higher Lev: ☑ RO ☑ 3.0 SRO ☑ 3.7

LP Number: 0718-10

LP Objective: 01.00

DEMONSTRATE general knowledge about the structure, terminology and usage of the Emergency Operation Procedures (EOP's).

Question So: New

Referen: OPD-04-09 EOP/AOP Users Guide page 18

Attachme: None

Commen:

OPPD Comment - Wording for choices B and C should be changed to allow transition prior to plant parameters being reached. Choices B and C reworded (5-25-01)

Question Nu: 15

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.4.09

Description: Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.

Quest:

To avoid RCS pressurization on a loss of Shutdown Cooling, an opening at least as large as _____ must be available prior to removing the steam generators from service.

A. PORV nozzle

B. Both pressurizer safety valves

C. Pressurizer manway

D. Reactor vessel head

Answe: C

CFR Sect: 41.10 / 43.5 / 45.13

Higher Lev: ☐

RO: ☑ 3.3

SRO: ☑ 3.9

LP Number: 0707-42

LP Objective: 10.02

Decay heat removal

Question So: Bank

I-7-07-42, 11.0 002

Referen: SO=O-21 page 5

Attachme: None

Commen:

Question Nu: 16

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.4.10

Description: Knowledge of annunciator response procedures.

Quest:

How are the Annunciator Response Procedures (ARPs) classified for level of use at FCS:

A. Continuous use procedures

B. Reference use procedures

C. Information use procedures

D. They are not classified for level of use

Answe: B

CFR Sect: 41.10 / 43.5 / 45.13

Higher Lev: ☐

RO: ☑ 3.0

SRO: ☐ 3.1

LP Number: 0762-11

LP Objective: 01.00

USE the ARPs to diagnose plant problems.

Question So: New

Referen: SO G-7 5.5.9

Attachme: None

Commen:

NRC Comment - Not discriminating enough for SRO. OK for RO

Changed to RO Only question. New SRO only question added using same K/A (question 127)

Question Nu: 17

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.4.16

Description: Knowledge of EOP implementation hierarchy and coordination with other support procedures.

Quest:

Which one of the following statements is true concerning the use of FCS Severe Accident Management Guideline's (SAMGs)?

A. TSC personnel use the SAMGs to support the Control Room Operators in mitigating core damage events.

B. EOF personnel use the SAMGs to support the Control Room Operators in mitigating core damage events.

C. The Control Room Operators use the SAMGs along with the EOPs to mitigate core damage events

D. The Control Room Operators transition from the EOPs to the SAMGs to mitigate core damage events

Answe: A

CFR Sect: 41.10 / 43.5 / 45.13

Higher Lev: ☐

RO: ☑ 3.0

SRO: ☑ 4.0

LP Number: 1074-01

LP Objective: 01.14

Question So: New

Referen: FCSSG-16 page 2

Attachme: None

Commen:

Question Nu: 18

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.4.25

Description: Knowledge of fire protection procedures.

Quest:

What is the Shift Managers specific responsibility in regards to Standing Order G-58, Control of Fire Protection System Impairments?

A. He is responsible for overall operability of the fire protection systems and equipment.

B. He is responsible for ensuring compensatory measures are established in accordance with Standing Order G-103.

C. He is responsible for tracking and documenting fire protection LCOs.

D. He is responsible for providing personnel to perform firewatch duties.

Answe: B

CFR Sect: 41.10 / 45.13

Higher Lev: ☐

RO: ☑ 2.9

SRO: ☑ 3.4

LP Number: 0762-01

LP Objective: 01.00

STATE the major sections of the Standing Orders.

Question So: Bank — SRO-7-62-01,G-58-1.1 001

Referen: SO G-58 page 3

Attachme: None

Commen:

OPPD Comment - Reword choice A to make it clearly incorrect.

Choice A reworded (5-25-01) distractor describes responsibility of Fire Protection System Engineer

Question Nu: 19

System/Mod: 000000 Stem:

Generic Knowledges and Abilities

KANo: 2.4.37 Description: Knowledge of the lines of authority during an emergency.

Quest:

A General Emergency has been declared at Fort Calhoun Station. The TSC and EOF are both fully staffed and operational. The Shift Manager is in the Command and Control Position at this time. Which one of the following duties can the Shift Manager delegate to his CRS?

A. Ensuring that the event is classified properly.

B. Ensuring appropriate Protective Action Recommendations are provided to offsite officials

C. Authorizing the issuance of Potassium Iodide to OPPD emergency workers

D. Authorizing deviations from Technical Specifications needed to mitigate the event.

Answe: D CFR Sect: 45.13

Higher Lev: ☐ RO: ☐ 2.0 SRO: ☑ 3.5

LP Number: ERO-085a LP Objective: 00.00

Generic Objective - allows linking Task or KA to Lesson Plan

Question So: New

Referen: EPIP-OSC-2 page 25

Attachme: None

Commen:

Question Nu: 20

System/Mod: 000001

Stem: Knowledge of the operational implications of the following concepts as they apply to Continuous Rod Withdrawal:

Continuous Rod Withdrawal

KANo: AK1.21

Description: Integral rod worth

Quest:

The reactor is operating at 50% power at BOC when a rod withdrawal accident occurs. Rod banks move with designed overlap. The RO takes manual action to stop the rod withdrawal after the rods have moved 20 inches. Which one of the following rod position changes will produce the largest rate of power rise?

A. Group four from 30 inches to 50 inches withdrawn

B. Group four from 50 inches to 70 inches withdrawn

C. Group four from 70 inches to 90 inches withdrawn

D. Group four from 90 to 110 inches withdrawn.

Answe: A

CFR Sect: 41.8 / 41.10 / 45.3

Higher Lev: ☑ RO ☑ 2.9 SRO ☑ 3.2

LP Number: 0715-32

LP Objective: 01.01

EXPLAIN how the rate of reactivity addition affects the reactor power response.

Question So: New

Referen: TDB Figure II.B.2.a

Attachme: TDB Figure II.B.2.a

Commen:

Question Nu: 21

System/Mod: 000003

Stem: Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod:

Dropped Control Rod

KANo: AK1.19

Description: Differential rod worth

Quest:

Fort Calhoun Station is operating at 100% power with rods all out and a burnup of 5000 MWD/MTU, when a group 4 CEA drops into the core. The secondary operator lowers turbine load and stabilizes the plant at 91% power with T-cold at its programmed value. What is the approximate average differential rod worth of the dropped CEA?

A. 0.001% delta rho/inch

B. 0.002% delta rho/inch

C. 0.01% delta rho/inch

D. 0.02% delta rho/inch

Answe: A

CFR Sect: 41.8 / 41.10 / 45.3

Higher Lev: ☑

RO: ☑ 2.8

SRO: ☑ 2.9

LP Number: 0715-32

LP Objective: 02.03

A CEA drop event

Question So: New

Referen: TDB Figure II.C.2

Attachme: TDB Figure II.C.2

Commen: [1.475% x 0.09] / 126 inches = .00105 % per inch

Question Nu: 22

System/Mod: 000003

Stem: Knowledge of the interrelations between the Dropped Control Rod and the following:

Dropped Control Rod

KANo: AK2.03

Description: Metroscope

Quest

One of the regulating CEAs dropped due to a clutch power failure. How will the SCEAPIS respond to this event?

A. The SCEAPIS will block withdrawal of all regulating rods if power is above 10-4% power.

B. The SCEAPIS will block withdrawal of all regulating rods if power is below 10-4% power.

C. The SCEAPIS will block withdrawal of all other rods in the dropped rod's group if power is above 10-4% power

D. The SCEAPIS will block withdrawal of all other rods in the dropped rod's group if power is below 10-4% power

Answe: A

CFR Sect: 41.7 / 45.7

Higher Lev: ☑

RO: ☑ 3.1*

SRO: ☑ 3.2*

LP Number: 0712-26

LP Objective: 01.08

Identify and explain the interlocks that control operation of the CEDM.

Question So: Modified

0712-26 1.8 001

Referen: CRD STM page 16

Attachme: None

Commen:

Question Nu: 23

System/Mod: 000007

Stem: Ability to operate and monitor the following as they apply to a reactor trip:

Reactor Trip

KANo: EA1.05

Description: Nuclear instrumentation

Quest:

A reactor trip has occurred, but 7 of the control rods failed to insert. Emergency Boration can not be established. Which one of the following will result in the EOP-20 Reactivity Control Safety Function being satisfied?

A. Startup rate is negative, RCS temperature is stable.

B. Startup rate is negative, Group "N" rods have been inserted.

C. Startup rate is zero, Wide Range NI channels read less than 1x10(-5) % power

D. Startup rate is zero, Power Range NI channels read 0 % power

Answe: C

CFR Sect: 41.7 / 45.5 / 45.6

Higher Lev: ☑ RO ☐ 4.0 SRO ☑ 4.1

LP Number: 0715-28

LP Objective: 01.16a

Excore Instrumentation

Question So: New

Referen: EOP 20

Attachme: None

Commen:

NRC Comment - Not SRO level question. Needs Link to 10CFR55.43. A may possibly be correct.
Original Question replaced. (6/4/01)
New question meets 10CFR55.43.5
Distractor D changed to ensure it is incorrect

Question Nu: 24

System/Mod: 000007

Stem: Ability to determine or interpret the following as they apply to a reactor trip:

Reactor Trip

KANo: EA2.02

Description: Proper actions to be taken if the automatic safety functions have not taken place

Quest:

The reactor has been manually tripped following a sudden loss of instrument air pressure. According to AOP-17, which one of the following actions should be taken to prevent overfilling the steam generators?

A. Close FCV-1101 and FCV-1102 using the SPEC-200 controllers.

B. Close FCV-1101 and FCV-1102 using the Auxiliary controllers.

C. Initiate SGIS

D. Trip all Main Feedwater Pumps

Answe: D

CFR Sect: 41.7 / 45.5 / 45.6

Higher Lev: ☑ RO ☑ 4.3 SRO ☑ 4.6

LP Number: 0711-11

LP Objective: 02.05

EXPLAIN the operation of the Feedwater Control System following a turbine trip.

Question So: New

Referen: AOP-17

Attachme: None

Commen:

NRC Comment - State Manual or auto trip in stem…is there an ABN for this? Changed to manually (5-25-01)

Distractor C&D changed, New correct answer D to agree with AOP

Question Nu: 25

System/Mod: 000008

Stem:

Pressurizer Vapor Space Accident

KANo: 2.4.31

Description: Knowledge of annunciators alarms and indications, and use of the response instructions.

Quest:

Which one of the instruments listed below allows identification of which PORV is leaking?

A. Downstream temperature

B. Downstream pressure

C. Downstream flow (DP)

D. Downstream noise

Answe: D

CFR Sect: 41.10 / 45.3

Higher Lev: ☐

RO: ☑ 3.3

SRO: ☑ 3.4

LP Number: 0711-20

LP Objective: 04.02h

Using the applicable P&ID, IDENTIFY each of the following RCS Instrumentation Subsystems: Acoustic monitors for the PORVs and safety valves

Question So: Bank — 0711-20 5.2H 001 (reworded)

Referen: RCS & RR STM page 21

Attachme: None

Commen:

OPPD Comment - replace "most reliable" Minor wording change to stem (5-25-01)

Added (DP) in choice C to differentiate from "acoustic flow"

Question Nu: 26

System/Mod: 000009

Stem: Ability to determine or interpret the following as they apply to a small break LOCA:

Small Break LOCA

KANo: EA2.19

Description: Containment air cooler run indication

Quest:

Which one of the following signals directly (underlined) causes the face dampers to open and the bypass dampers to close on the Containment Cooling and Filtering units?

A. VIAS

B. CPHS

C. SIAS

D. CIAS

Answe: A

CFR Sect: 43.5 / 45.13

Higher Lev: ☐

RO: ☑ 2.7

SRO: ☑ 3.1

LP Number: 0714-02

LP Objective: 01.04

Explain automatic controls associated with the Containment Air Cooling and Filtering System.

Question So: Bank — 0714-02 1.4 001

Referen: CBS&V STM page 22

Attachme: None

Commen: OPPD Comment - Add "Containment" to stem. Underline "directly" changes made (5-25-01)

Question Nu: 27

System/Mod: 000009

Stem: Knowledge of the interrelations between the small break LOCA and the following:

Small Break LOCA

KANo: EK2.03

Description: S/Gs

Quest

If the primary system pressure drops below the secondary pressure during a loss of coolant accident, it indicates that:

A. The ECCS flow is inadequate to remove decay heat

B. The Main steam isolation valves have been closed

C. Reflux boiling is taking place

D. The break flow is adequate to remove decay heat

Answe: D

CFR Sect: 41.7 / 45.7

Higher Lev: ☑

RO: ☑ 3.0

SRO: ☑ 3.3*

LP Number: 0715-23

LP Objective: 01.02

EXPLAIN how the decay heat removal capacity of the break affects plant response.

Question So: Bank — 7-15-23, 1.2 002

Referen: SHB 0715-23 page 5

Attachme: None

Commen:

Question Nu: 28

System/Mod: 000011

Stem:

Large Break LOCA

KANo: 2.4.50

Description: Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

Quest:

Which one of the following conditions will cause a "HPSI Pump Off Normal" alarm?

A. SI pump control switch in after close

B. 69 permissive switch in after-close

C. Corresponding Breaker in Operate

D. SI pump control switch in pull-stop

Answe: D

CFR Sect: 45.3

Higher Lev: ☐

RO: ☑ 3.3

SRO: ☑ 3.3

LP Number: 0712-14

LP Objective: 02.06

Given a current copy of the Annunciator Response Procedures, EXPLAIN the alarms associated with ESC and the required corrective actions.

Question So: Bank 0712-14 2.6 001

Referen: ECC STM page 12

Attachme: None

Commen:

Question Nu: 29

System/Mod: 000011

Stem: Ability to determine or interpret the following as they apply to a Large Break LOCA:

Large Break LOCA

KANo: EA2.05

Description: Significance of charging pump operation

Quest:

What is the minimum number of charging pumps that would be required to provide adequate makeup flow to remove heat 24 hours after a large LOCA that occurred from full power?

A. One charging pump

B. Two charging pumps

C. Three charging pumps

D. More than the flow from three charging pumps is required

Answe: D

CFR Sect: 43.5 / 45.13

Higher Lev: ☑

RO: ☑ 3.3

SRO: ☑ 3.7*

LP Number: 0707-42

LP Objective: 03.07

RCS makeup flowrates for available success paths

Question So: New

Referen: AOP 19 page 3, CVCS STM page 22

Attachme: None

Commen:

NRC Commnent - reference does not clearly support the answer..discuss

AOP-19 states that a minimum of 55 gpm is required to remove decay heat 24 hours after shutdown. The CVCS STM states that the capacity of the charging pumps is 40 gpm per pump, Therefore, at least two charging pumps are required.

Question Nu: 30

System/Mod: 000015

Stem: Ability to operate and / or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):

Reactor Coolant Pump Malfunctions

KANo: AA1.13

Description: Reactor power level indicators

Quest

What actions occur as a result of placing the zero power mode bypass switch on an RPS channel in "bypass" when the reactor power is less than 1 x 10-4% power?

A. High power, TM/LP and low S/G pressure trips are bypassed.

B. High power and TM/LP trips are bypassed and delta-T power is blocked to the NI/delta-T power auctioneer.

C. Low flow, TM/LP and low S/G pressure trips are bypassed.

D. Low flow and TM/LP trips are bypassed and delta-T power is blocked to the NI/delta-T power auctioneer.

Answe: D

CFR Sect: 41.7 / 45.5 / 45.6

Higher Lev: ☐

RO: ☑ 3.4*

SRO: ☑ 3.4*

LP Number: 0712-25

LP Objective: 01.07b

EXPLAIN the reason(s) for each of the following trip unit bypasses: Low reactor coolant flow

Question So: Bank — 0712-25 1.7 B,D 001

Referen: RP STM page 38

Attachme: None

Commen:

Question Nu: 31

System/Mod: 000017

Stem: Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):

Reactor Coolant Pump Malfunctions (Los

KANo: AA2.10

Description: When to secure RCPs on loss of cooling or seal injection

Quest

The following plant conditions exist:

The reactor is at 100% power
RCS pressure is 2100 psia
RCP seal leakoff flow is 1 gpm per pump
VCT pressure is 50 psia.
RC-3A pressure above lower seal is 110 psia
RC-3A pressure above middle seal is 80 psia

Which one of the following is correct about the condition of RC-3A's seals?

A. The lower seal has failed

B. The upper seal has failed

C. The lower and middle seals have failed

D. The upper and middle seals have failed

Answe: D

CFR Sect: 43.5 / 45.13

Higher Lev: ☑ RO ☑ 3.7 SRO ☑ 3.7

LP Number: 0711-20

LP Objective: 01.07d

EXPLAIN the operation of the RCP seal package.

Question So: New

Referen: RC STM pages 18-20

Attachme: None

Commen:

NRC Comment - add "full pressure" seals in stem…where does 1.73 gpm come from?
OPPD Comment - Question has backwards logic and should be modified.

Question rewritten 6/12/01

Question Nu: 32

System/Mod: 000024

Stem:

Emergency Boration

KANo: 2.4.49

Description: Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

Quest:

As per AOP-03, Emergency Boration should continue until:

A. Adequate shutdown margin has been established PER OP-ST-RX-0008 "Shutdown Margin Verification During Hot Shutdown, Cold Shutdown or Refueling."

B. Both "CONC BORIC ACID TANK CH-11 A/R LEVEL LO-LO" alarms on (CB-1,2,3;A2) have been received.

C. The VCT level reaches the high level alarm setpoint of 91.2%.

D. Two or more Wide Range Nuclear Instrumentation channels indicate less than 10-4% power.

Answe: A

CFR Sect: 41.10 / 43.2 / 45.6

Higher Lev: ☐

RO: ☑ 4.0

SRO: ☑ 4.0

LP Number: 0717-03

LP Objective: 01.05

Given the caution statements and/or notes listed in this AOP, explain the reason for each.

Question So: Bank

0717-03 1.5 001

Referen: AOP-03 page 6

Attachme: None

Commen:

NRC Comment - change B to more technical …? Gal boric acid injected from BATs to RCS. Change C to "low lvl" vice high.
OPPD Comment - AOP-3 says RE-ST-RX-0008
Reference changed, OK as is otherwise

Question Nu: 33

System/Mod: 000026

Stem:

Loss of Component Cooling Water

KANo: 2.1.23

Description: Ability to perform specific system and integrated plant procedures during all modes of plant operation.

Quest:

In accordance with OI-CC-1, what action is taken to prevent check valve damage when rotating running CCW pumps?

A. The oncoming pump's discharge valve is closed prior to starting the pump.

B. The offgoing pump's discharge valve is closed prior to stopping the pump

C. The oncoming pump's discharge valve is throttled to 2 turns open prior to starting the pump.

D. The offgoing pump's discharge valve is throttled to 2 turns open prior to stopping the pump.

Answe: B

CFR Sect: 45.2 / 45.6

Higher Lev: ☐

RO: ☑ 3.9

SRO: ☑ 4.0

LP Number: 0711-06

LP Objective: 02.03

EXPLAIN how check valve slam is minimized when stopping a CCW pump.

Question So: Modified

071106 2.3 002 Stem and distractors changed

Referen: OI-CC-1

Attachme: None

Commen:

NRC Comment - Not responsive to K/A as written…Revise Q to diagnose a leak out of CCW, then ask for system auto actions expected.
OPPD Comment - Are distractors A&C plausible?

Replaced question with one from bank. Distractors changed.

Question Nu: 34

System/Mod: 000026

Stem: Ability to determine and interpret the following as they apply to the Loss of Component Cooling Water:

Loss of Component Cooling Water

KANo: AA2.06

Description: The length of time after the loss of CCW flow to a component before that component may be damaged

Quest:

Thirty minutes into a small break LOCA, CCW cooling is lost to the HPSI pumps. CCW remains available to all other required components. Which one of the following actions should be taken?

A. The HPSI pumps should be allowed to continue operating

B. The HPSI pumps should be shutdown until CCW can be restored

C. The HPSI pumps should be shutdown until either CCW can be restored or Raw Water backup can be established

D. The HPSI pumps should be shutdown until they can be inspected. They are no longer needed for this event.

Answe: A

CFR Sect: 43.5 / 45.13

Higher Lev: ☑ RO ☑ 2.8* SRO ☑ 3.1*

LP Number: 0717-11

LP Objective: 01.02

Describe how the plant responds to a Loss of Component Cooling Water in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Question So: New

Referen: EA-FC-91-014 as referenced in LP 0711-22 page 31

Attachme: None

Commen:

Engineering analysis shows HPSI pumps can run without cooling water.

OPPD Comment - Remove "either CCW can be restored or" from C This is already a choice in B

Question Nu: 35

System/Mod: 000027 — Pressurizer Pressure Control System Mal

Stem: Knowledge of the operational implications of the following concepts as they apply to Pressurizer Pressure Control Malfunctions:

KANo: AK1.02

Description: Expansion of liquids as temperature increases

Quest:

A PORV opened as a result of a pressurizer control system malfunction. The breaker for the PORV block valve tripped while trying to isolate the PORV. As a result of the failures, a PPLS signal was received , RCS subcooling was lost and pressurizer level increased to 100% . The breaker was then reclosed for the PORV block valve.

EOP-03 contains a caution concerning isolation of a PORV if the pressurizer is water solid. What action should be taken prior to isolating the PORV?

A. Reactor vessel level must be verified to be above 43%.

B. Pressurizer level must be lowered below 60%.

C. 20°F subcooling must be restored.

D. A reactor cooldown must be commenced.

Answe: D

CFR Sect: 41.8 / 41.10 / 45.3

Higher Lev: ☑

RO: ☐ 2.8

SRO: ☑ 3.1

LP Number: 0715-23

LP Objective: 01.01

EXPLAIN the response of primary system parameters.

Question So: New

Referen: LP 0715-23 page 21

Attachme:

Commen:

NRC Comment - not SRO Only …system level question
suggent tie in to procedure in stem to make 55.43 item

Question rewritten 6/12/01

Question Nu: 36

System/Mod: 000029

Stem:

Anticipated Transient Without Scram (AT

KANo: 2.4.31

Description: Knowledge of annunciators alarms and indications, and use of the response instructions.

Quest

To allow steam generators to be drained during an outage, OI-RC-4 installs jumpers across the interposing relay contacts to keep the M coils energized. What affect do these jumpers have on RPS operation.

A. All automatic trips except for diverse scram will be bypassed. The reactor can still be tripped manually from the RPS cabinets.

B. All automatic trips including diverse scram will be bypassed. The reactor can still be tripped manually from CB-4.

C. All automatic and manual trips will be bypassed, including diverse scram.

D. Only the low steam generator level trips will be bypassed. All other automatic, diverse and manual trips will be operational.

Answe: A

CFR Sect: 41.10 / 45.3

Higher Lev: ☐

RO: ☑ 3.3

SRO: ☑ 3.4

LP Number: 0712-25

LP Objective: 01.16a

Given a simplified diagram of the RPS trip paths, EXPLAIN how the "M" coil contacts are: Opened to initiate a reactor trip

Question So: Bank

0712-25 1.13 001

Referen: RP STM pages 25-27

Attachme: None

Commen: NRC Comment - typo in choice D fixed (5-25-01)

Question Nu: 37

System/Mod: 000029

Stem: Knowledge of the operational implications of the following concepts as they apply to the ATWS:

Anticipated Transient Without Scram (AT

KANo: EK1.02

Description: Definition of reactivity

Quest:

The plant is operating at full power near the end of an operating cycle when a loss of feedwater ATWS event occurs. Which one of the following reactivity mechanisms adds positive reactivity during this event?

A. Fuel temperature coefficient

B. Moderator temperature coefficient

C. Void coefficient

D. Boron concentration change

Answe: A

CFR Sect: 41.8 / 41.10 / 45.3

Higher Lev: ☑

RO: ☑ 2.6

SRO: ☑ 2.8

LP Number: 0715-17

LP Objective: 01.06

EXPLAIN the primary and the secondary plant response to a loss of feedwater ATWS.

Question So: New

Referen: LP 0715-17 page 10

Attachme: None

Commen:

NRC Comment - verify the answer is independent of time of life
OPPD Comment - Do we need to give a power level so they know MTC is negative
EOC and power condition added to stem (5-25-01)

Question Nu: 38

System/Mod: 000032

Stem: Ability to determine and interpret the following as they apply to the Loss of Source Range Nuclear Instrumentation:

Loss of Source Range Nuclear Instrumen

KANo: AA2.08

Description: Testing required if power lost, then restored

Quest

With the plant at 100% power, an I&C technician discovers that the results of his recently completed surveillance test administratively renders A, B and C wide range channels inoperable. Select the one statement that describes the best course of action.

A. Trip the reactor, GO TO EOP-00, Standard post Trip Actions

B. Place the Reactor in a hot shutdown condition within 12 hours

C. Place the #2 trip unit on one channel in bypass and one channel in trip within one hour

D. Log the surveillance test result in the control room log and continue steady state operation

Answe: D

CFR Sect: 43.5 / 45.13

Higher Lev: ☑

RO: ☐ 2.2

SRO: ☑ 3.1

LP Number: 0717-15

LP Objective: 01.04

Describe the operator actions to a loss of flux indications.

Question So: Bank

0717-15 1.4 001

Referen: FCS Technical Specification 2.15

Attachme: None

Commen

Channel D provides a signal to AI-212

NRC Comment - answer appears incomplete

Question Nu: 39

System/Mod: 000033

Stem: Ability to determine and interpret the following as they apply to the Loss of Intermediate Range Nuclear Instrumentation:

Loss of Intermediate Range Nuclear Instr

KANo: AA2.01

Description: Equivalency between source-range, intermediate-range, and power-range channel readings

Quest

The NI source range indicators provides indication at flux levels approximately 2 decades below that of the wide range indicators, even though they share detectors. In addition to an extra detector per channel, what design feature provides this additional range?

A. The "Source Range" meter uses a "Campbelling" (MSV) Circuit

B. The "Source Range" meter uses a more sensitive discriminator setting.

C. The "Source Range" uses a higher detector voltage.

D. The "Source Range" uses an extra detector per channel with no other differences.

Answe: B

CFR Sect: 43.5 / 45.13

Higher Lev: ☑ RO ☑ 3.0 SRO ☑ 3.5

LP Number: 0712-18

LP Objective: 01.00

Explain the basic principles of design and operation used in WR Nuclear Instrumentation System detectors at FCS.

Question So: New

Referen: NI STM pages 7-8

Attachme: None

Commen: OPPD Comment - move "extra detector per channel" to stem Change made (5-25-01)

Question Nu: 40

System/Mod: 000036

Stem: Knowledge of the reasons for the following responses as they apply to the Fuel Handling Incidents:

Fuel Handling Incidents

KANo: AK3.01

Description: Different inputs that will cause a reactor building evacuation

Quest:

According to AOP-08, which one of the following would be an indication of a fuel handling accident in containment requiring evacuation of non-essential personnel?

A. High Containment Temperature

B. Auto start of containment cooling and filtering units, VA-3A and VA-3B

C. VA-66 transferring to "filter" mode

D. A Ventilation Isolation Actuation Signal (VIAS)

Answe: D

CFR Sect: 41.5 / 41.10 / 45.6 / 45.13

Higher Lev: ☐

RO: ☑ 3.1

SRO: ☐ 3.7

LP Number: 0717-08

LP Objective: 01.04

Describe the entry conditions for this AOP.

Question So: New

Referen: AOP-08 page 4

Attachme: None

Commen:

Question Nu: 41

System/Mod: 000038

Stem: Ability to operate and monitor the following as they apply to a SGTR:

Steam Generator Tube Rupture

KANo: EA1.14

Description: AFW pump control and flow indicators

Quest:

A steam generator tube rupture has occurred in RC-2B. The Turbine Driven AFW Pump, FW-10, is being used to provide feedwater flow. What action is taken to prevent a radioactive release via the FW-10 steam exhaust?

A. RCV-978 is opened to transfer FW-10 supply steam to the Auxiliary Steam System

B. YCV-1045B is closed to isolate steam from RC-2B

C. FW-1121A is opened to divert FW-10 exhaust to the stack.

D. FW-10 can not be used during a steam generator tube rupture

Answe: B

CFR Sect: 41.7 / 45.5 / 45.6

Higher Lev: ☐

RO: ☑ 4.1

SRO: ☑ 3.9

LP Number: 0715-33

LP Objective: 01.03

EXPLAIN the pathways for the transport of radioactivity to the environment during a steam generator tube rupture event.

Question So: New

Referen: EOP-04 page 19

Attachme: None

Commen: NRC Comment - not SRO ONLY need diagnosis and selection of procedures

Question Nu: 42

System/Mod: 000038

Stem: Ability to determine or interpret the following as they apply to a SGTR:

Steam Generator Tube Rupture

KANo: EA2.14

Description: Magnitude of atmospheric radioactive release if cooldown must be completed using steam dumps or if atmospheric reliefs lift

Quest:

The plant has been shutdown due to significant failed fuel and primary to secondary leaks in both steam generators. Which one of the following steaming paths should be used for the cooldown to monitor offsite radiation releases.

A. MS-291 and MS-292

B. HCV-1040

C. PCV-910 and TCV-909's with Condenser Evacuation in normal alignment

D. PCV-910 and TCV-909's with Condenser Evacuation aligned to the AB stack

Answe: D

CFR Sect: 43.5 / 45.13

Higher Lev: ☑ RO ☐ 3.3* SRO ☑ 4.6

LP Number: 0715-33

LP Objective: 01.03

EXPLAIN the pathways for the transport of radioactivity to the environment during a steam generator tube rupture event.

Question So: New

Referen: CE STM page 13

Attachme: None

Commen:

NRC Comment - not SRO Only.
OK to use after discussion

Question Nu: 43

System/Mod: 000040

Stem: Ability to operate and / or monitor the following as they apply to the Steam Line Rupture:

Steam Line Rupture

KANo: AA1.22

Description: Load sequencer status lights

Quest:

Following a steam line break in containment, which one of the following loads could start before its sequencer timer times out?

A. AC-3A

B, AC-10B

C. FW-4C

D. FW-6

Answe: D

CFR Sect: 41.7 / 45.5 / 45.6

Higher Lev: ☐

RO: ☑ 3.0*

SRO: ☑ 3.0*

LP Number: 0712-14

LP Objective: 01.05

EXPLAIN the functions performed by each Engineered Safeguards Control Signal.

Question So: Bank — 0712-14 1.5 009 stem reworded

Referen: ES&C STM page 41

Attachme: None

Commen: reworded stem to clarify what is meant by "retains autostart feature" following exam validation comment

Question Nu: 44

System/Mod: 000040

Stem: Knowledge of the reasons for the following responses as they apply to the Steam Line Rupture:

Steam Line Rupture

KANo: AK3.06

Description: Containment temperature and pressure considerations

Quest

Which one of the following will cause the peak containment pressure to be higher during a steam line break in containment?

A. Providing AFW flow to the ruptured steam generator

B. Providing AFW flow to the good steam generator

C. Opening the MSIV bypass valve from the ruptured steam generator

D. Opening the MSIV bypass valve from the good steam generator

Answe: A

CFR Sect: 41.5 / 41.10 / 45.6 / 45.13

Higher Lev: ☑

RO: ☑ 3.4

SRO: ☐ 3.9

LP Number: 0715-20

LP Objective: 01.03

EXPLAIN the response of containment parameters.

Question So: New

Referen: LP 0715-20 page 14

Attachme: None

Commen:

Question Nu: 45

System/Mod: 000054

Stem:

Loss of Main Feedwater

KANo: 2.2.25

Description: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

Quest

What is the basis for the technical specification requirement that the Emergency Feedwater Storage Tank have at least 55,000 gallons of water in it?

A. This is the amount of water required to remove decay heat for eight hours

B. This is the amount of water required to remove decay heat for 24 hours

C. This is the amount of water required to cooldown the RCS to Shutdown cooling entry conditions

D. The is the amount of water required to ensure adequate NPSH for operation of the Aux. Feedwater pumps.

Answe: A

CFR Sect: 43.2

Higher Lev: ☐ RO ☐ 2.5 SRO ☑ 3.7

LP Number: 0711-01

LP Objective: 01.05

Given a copy of the Technical Specifications, INTERPRET the requirements for the AFW System.

Question So: New

Referen: Technical Specification 2,5

Attachme: None

Commen:

Question Nu: 46

System/Mod: 000054

Stem: Ability to operate and / or monitor the following as they apply to the Loss of Main Feedwater (MFW):

Loss of Main Feedwater

KANo: AA1.02

Description: Manual startup of electric and steam-driven AFW pumps

Quest:

A DC powered oil pump is provided on FW-10, Turbine-Driven Auxiliary Feedwater Pump.

Choose the statement below that correctly describes the functions] of this pump.

A. The DC pump will provide bearing lubrication for the turbine in the event that the main oil pump trips

B. The DC pump provides oil to operate the governor system until the main oil pump develops pressure

C. The DC pump will provide bearing lubrication until the main oil pump develops pressure

D. The DC pump will provide oil to BOTH the bearing and the governor system until the main oil pump develops pressure

Answe: B

CFR Sect: 41.7 / 45.5 / 45.6

Higher Lev: ☐

RO: ☑ 4.4

SRO: ☑ 4.4

LP Number: 0711-01

LP Objective: 01.08

EXPLAIN the operation of the Control Oil System for the steam driven AFW pump (FW-10).

Question So: Bank — 0711-01 002

Referen: AFW STM page 8

Attachme: None

Commen:

Question Nu: 47

System/Mod: 000055 Stem:

Station Blackout

KANo: 2.1.32 Description: Ability to explain and apply all system limits and precautions.

Quest

The following plant conditions exist:
ALL offsite and onsite power was lost at 0600 hours
At 0800 hours the new operating crew realized the failure of the previous crew to minimize DC bus loads as per steps 15.1b and 22 of EOP-07, "Station Blackout."
ALL other steps had been performed
Estimates are that onsite power will be restored between 1600 and 2000 hours.
No estimate is available for return of offsite power.

Which ONE of the following will be the consequence of a failure of either crew to perform step 15.1b (minimize DC bus loads) of EOP-07, "Station Blackout?"

A. 120 VAC could be lost prior to 1400 hours.

B. Loss of DC control power to all 4.16 KV switchgear could be lost prior to 0900 hours.

C. 125 VDC could be lost prior to 0900 hours.

D. No adverse affects should be seen prior to onsite power being available.

Answe: A CFR Sect: 41.10 / 43.2 / 45.12

Higher Lev: ☑ RO: ☐ 3.4 SRO: ☑ 3.8

LP Number: 0718-17 LP Objective: 02.03

GIVEN a copy of Attachment 6, EXPLAIN the steps necessary to minimize DC loads.

Question So: Bank 0718-17 2.3 002

Referen: ED STM page 16

Attachme: None

Commen: NRC Comment - ensure all answers could not be argued as correct

Question Nu: 48

System/Mod: 000056

Stem:

Loss of Off-Site Power

KANo: 2.1.30

Description: Ability to locate and operate components, including local controls.

Quest

Which of the following group of lockout relays must be reset prior to establishing 345 KV backfeed per Attachment 21, Energizing Buses 1A1 and 1A2 from Off-Site Power.

A. 86-1/T1A-4, 86-2/T1A-4,86-1/T1A-3, 86-2/T1A-3

B. 86-2/SVG1, 86-1/SVG1, 86/2-BF4, 86/2-BF5

C. 86/161 and 86X/FT161

D. 86/1A22, 86/1A42, 86/1A21 and 86/1A41

Answe: B

CFR Sect: 41.7 / 45.7

Higher Lev: ☑ RO ☑ 3.9 SRO ☑ 3.4

LP Number: 0718-12

LP Objective: 02.04

GIVEN a copy of Attachment 21, EXPLAIN the steps necessary to energize a non-vital 4160 V bus from off-site power.

Question So: Bank 0718-12 2.4 001

Referen: EOP/AOP attachment 21

Attachme: None

Commen

NRC Comment - from memory, no handouts discuss
OPPD Comment - too detailed? Would use procedure.

Suggested resolution - Leave as is, question requires candidates to differentiate between 345 KV and 161 KV lockouts. Should be counted as Higher level question (change made - 5-25-01)

Question Nu: 49

System/Mod: 000056

Stem: Ability to determine and interpret the following as they apply to the Loss of Offsite Power:

Loss of Off-Site Power

KANo: AA2.56

Description: RCS T-ave

Quest

All offsite power was lost one hour ago, causing a trip from extended full power operations, and has not been regained.

Which ONE of the following is an indication of inadequate core cooling in this condition?

A. Core delta-T is 65°F

B. RCS subcooling is 28°F

C. RCS hot and cold leg temperatures are decreasing

D. CETs indicate 545°F and RCS hot leg temperature indicates 539°F

Answe: A

CFR Sect: 43.5 / 45.13

Higher Lev: ☑

RO: ☐ 3.6*

SRO: ☑ 3.7

LP Number: 0718-12

LP Objective: 03.01

STATE from memory the four indications used to verify the development of Subcooled Natural Circulation.

Question So: Bank 0718-12 3.1 002

Referen: SHB 0715-16 pages13-14

Attachme: None

Commen:

Question Nu: 50

System/Mod: 000057

Stem: Ability to operate and / or monitor the following as they apply to the Loss of Vital AC Instrument Bus:

Loss of Vital AC Electrical Instrument Bu

KANo: AA1.04

Description: RWST and VCT valves

Quest:

The plant was operating at 100% steady state power when the reactor tripped due to a loss of power to bus 1A3. All control room actions for Emergency Boration were taken. Assuming bus 1A3 remains deenergized, which one of the following local operations would result in emergency boration flow?

A. Opening HCV-258

B. Opening HCV-265

C. Opening HCV-268

D. Opening LCV-218-3

Answe: C

CFR Sect: 41.7 / 45.5 / 45.6

Higher Lev: ☑ RO ☑ 3.5 SRO ☑ 3.6

LP Number: 0717-03

LP Objective: 01.00

Use the Emergency Boration AOP to mitigate the consequences of an uncontrollable or unexplained positive reactivity addition.

Question So: New

Referen: CVCS STM pages 36 and 37

Attachme: None

Commen: VCT pressure will prevent gravity feed with no power to close LCV-218-2

Question Nu: 51

System/Mod: 000057

Stem: Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus:

Loss of Vital AC Electrical Instrument Bu

KANo: AA2.16

Description: Normal and abnormal PZR level for various modes of plant operation

Quest

AOP-16 states that Pressurizer Level Controller "Y" becomes inoperable when Instrument bus "B" is lost.

Assume that the plant is operating at 100% power with LT-101X failed and channel "Y" selected as the control channel when a loss of Instrument Bus "B" occurred. How would you direct the Reactor Operator to maintain pressurezer level in that situation?

A. Place the selector switch to channel "X" and manually control indicated level at 60% on LI-106.

B. Place the selector switch to channel "X" and manually control indicated level at 38% on LI-106.

C. Place the selector switch to channel "X" and manually control indicated level at 48% on LI-106.

D. Place the selector switch to channel "X" and manually control indicated level at 31% on LI-106.

Answe: B

CFR Sect: 43.5 / 45.13

Higher Lev: ☑ RO ☐ 3.0 SRO ☑ 3.1

LP Number: 0717-16

LP Objective: 01.02

Describe how the plant responds to a loss of instrument bus power in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Question So: New

Referen: RCS&RR STM pages 10-11

Attachme: TDB-III-2

Commen

NRC Comment - Possibly not SRO ONLY. Is this in a procedure other than STMs?

Possible reword question to use TDB figure for LI-106

Question reworded 6/12/01

Question Nu: 52

System/Mod: 000058

Stem: Ability to determine and interpret the following as they apply to the Loss of DC Power:

Loss of DC Power

KANo: AA2.01

Description: That a loss of dc power has occurred; verification that substitute power sources have come on line

Quest:

An EOP-20 event has occurred involving a loss of DC bus# 1. DC bus #2 is being powered by a battery charger. What other condition must be met before the MVA-DC safety function is satisfied?

A. DC bus #1 must be reenergized

B. DC loads must be minimized

C. Instrument buses associated with DC bus #1 must be powered

D. Switchgear DC control power must be supplied by DC bus #2

Answe: D

CFR Sect: 43.5 / 45.13

Higher Lev: ☑

RO: ☐ 3.7

SRO: ☑ 4.1

LP Number: 0718-18

LP Objective: 01.06

EXPLAIN how the Resource Assessment Trees are used in terms of Safety Function priority and success path priority within each tree.

Question So: New

Referen: EOP-20 page 141

Attachme: None

Commen:

Validator comment - should word switchgear be removed because more than just switchgear control power is transferred.

Resolution - leave as written, EOP-20 just talks about switchgear DC control power in safety function criteria

Question Nu: 53

System/Mod: 000058

Stem: Knowledge of the reasons for the following responses as they apply to the Loss of DC Power:

Loss of DC Power

KANo: AK3.01

Description: Use of dc control power by D/Gs

Quest:

The reactor tripped due to a loss of offsite power. A fault occurred on DC bus#1. What DC control power Emergency MTS buttons must be operated before FW-6 can be used to supply water to the steam generators?

A. The 1A1-1A3 and the D1 Emergency Source pushbuttons

B. The 1A1-1A3 and the D2 Emergency Source pushbuttons

C. The 1A2-1A4 and the D1 Emergency Source pushbuttons

D. The 1A2-1A4 and the D2 Emergency Source pushbuttons

Answe: A

CFR Sect: 41.5 / 41.10 / 45.6 / 45.1

Higher Lev: ☑ RO ☑ 3.4* SRO ☑ 3.7

LP Number: 0718-18

LP Objective: 01.05

Given the Resource Assessment Trees, basically DESCRIBE the Method, Path and Acceptance Criteria for each success path.

Question So: New

Referen: ED-STM page 80

Attachme: None

Commen: FW-6 is powered from bus 1A3, which is powered by DG#1. Both normally receive control power from DC bus #1.

Question Nu: 54

System/Mod: 000059

Stem: Knowledge of the operational implications of the following concepts as they apply to Accidental Liquid Radwaste Release:

Accidental Liquid Radwaste Release

KANo: AK1.01

Description: Types of radiation, their units of intensity and the location of the sources of radiation in a nuclear power plant

Quest:

Which one of the following operations may cause significant changes in radiation levels outside the RCA when operating with damaged fuel at FCS?

A. Recirculating a monitor tank

B. Transferring water between Waste Holdup Tanks

C. Placing a gas decay tank in service

D. Transferring a spent resin filled HIC to a shipping cask

Answe: D

CFR Sect: 41.8 / 41.10 / 45.3

Higher Lev: ☐

RO: ☑ 2.7

SRO: ☑ 3.1

LP Number: 0711-32

LP Objective: 01.00

When given specific plant conditions, apply operating principles to predict response of the Waste Disposal Liquid System (WDLS).

Question So: New

Referen: Recent plant history

Attachme: None

Commen:

During the last cycle, we ensured Admin building was empty during HIC transfer due to radiological concerns.

Distractor D reworded due to validation comment that HIC must contain something

Question Nu: 55

System/Mod: 000061

Stem: Knowledge of the interrelations between the Area Radiation Monitoring (ARM) System Alarms and the following:

Area Radiation Monitoring (ARM) System

KANo: AK2.01

Description: Detectors at each ARM system location

Quest

How will the area radiation monitors at Fort Calhoun Station respond to a small drop in detector voltage?

A. The detector output will remain steady

B. The detector output will be lower

C. The detector output will be higher

D. The detector output will spike than return to normal

Answe: A

CFR Sect: 41.7 / 45.7

Higher Lev: ☑

RO: ☑ 2.5*

SRO: ☑ 2.6*

LP Number: 0712-03

LP Objective: 03.01

LIST the two basic types of monitors used at Fort Calhoun Station.

Question So: Bank 0712-03 3.1 001

Referen: RM STM page 36

Attachme: None

Commen: Ion chambers are used in area monitors.

Question Nu: 56

System/Mod: 000067

Stem:

Plant Fire on Site

KANo: 2.1.32

Description: Ability to explain and apply all system limits and precautions.

Quest:

The plant is operating at 80% power when a fire breaks out in the turbine building in the vicinity of the main Generator. Attempts to extinguish the fire are unsuccessful. What actions should be taken by the CRS?

A. Initiate an AOP-05 shutdown, Direct isolation of hydrogen to the generator and supplying CO2 to the generator.

B. Initiate an AOP-05 shutdown, Direct isolation of hydrogen to the generator and venting the generator to the turbine building roof.

C. Enter AOP-06, Direct tripping of the Reactor, isolation of hydrogen to the generator and supplying CO2 to the generator.

D. Enter AOP-06, Direct tripping of the Reactor, isolation of hydrogen to the generator and venting the generator to the turbine building roof.

DELETED POST-EXAM:

CFR Sect: 41.10 / 43.2 / 45.12

Higher Lev: ☑

RO: ☐ 3.4

SRO: ☑ 3.8

LP Number: 0717-06

LP Objective: 01.03

Describe the major recovery actions of this AOP.

Question So: New

Referen: AOP-06 pages 13-15

Attachme: None

Commen:

NRC Comment - not SRO Only, from memory OK?

Reworded to diagnose AOP-06 entry and direct RO and plant operator actions (5-25-01)

Question Nu: 57

System/Mod: 000067

Stem: Ability to determine and interpret the following as they apply to the Plant Fire on Site:

Plant Fire on Site

KANo: AA2.16

Description: Vital equipment and control systems to be maintained and operated during a fire

Quest:

A fire in the Upper Electrical Penetration Room poses a dual threat to safe plant shutdown due to the fact that Alternate Shutdown Panels are located in this area and _____.

A. A fire in this area could easily spread into the Diesel Generator Rooms.

B. A fire in this area could prevent a reactor trip as many of the RPS logic components are located in this room.

C. A fire in this area could cause control problems, as most of the Instrument and Control Loops for Containment pass through this room.

D. A fire in this area could easily spread into the Containment through Containment Penetrations in the room.

Answe: C

CFR Sect: 43.5 / 45.13

Higher Lev: ☑ RO ☑ 3.3 SRO ☑ 4.0

LP Number: 0717-06

LP Objective: 01.02c

Describe how the plant may respond to a fire in the following locations: Upper Electrical Penetration Room.

Question So: Bank 0717-06 1.2 001

Referen: AOP-06 pages 56-61

Attachme: None

Commen:

NRC comment - B Correct?
Choice B reworded (6/4/01)

Question Nu: 58

System/Mod: 000068

Stem:

Control Room Evacuation

KANo: 2.4.31

Description: Knowledge of annunciators alarms and indications, and use of the response instructions.

Quest

The following conditions exist:
The control room has been evacuated.
A plant cooldown must be conducted from the Alternate Shutdown Panel.
Which one of the following describes the actions necessary to avoid PPLS during this cooldown?

A. PPLS must be blocked as part of the process of evacuating the control room.

B. PPLS will not auto initiate with control at the Alternate Shutdown Panel.

C. All affected equipment must be placed in Pull-to-Lock locally at their breaker panels.

D. The control power fuses of all affected equipment are removed from their breakers cabinets.

Answe: C

CFR Sect: 41.10 / 45.3

Higher Lev: ☑ RO ☑ 3.3 SRO ☑ 3.4

LP Number: 0717-06

LP Objective: 01.02

Describe how the plant may respond to a fire in the following locations.

Question So: Bank — 1995 NRC exam question 40

Referen: AOP-06 pages 71 and 79, for example

Attachme: None

Commen: OPPD comment - is there a reference for this

Question Nu: 59

System/Mod: 000068

Stem: Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation:

Control Room Evacuation

KANo: AK3.07

Description: Maintenance of S/G level, using AFW flow control valves

Quest:

Remote shutdown panel operation is taking place due to control room evacuation. Which one of the following actions will occur when the transfer switches on AI-179 are taken to local if S/G levels decrease to the AFAS low level setpoint?

A. AFAS will open valves HCV-1107A, HCV-1107B, HCV-1108A, HCV-1108B and FW-10 will auto start

B. AFAS will open HCV-1107A and HCV-1108A. HCV-1107B and HCV-1108B can be throttled. FW-10 will auto start

C. AFAS signals to HCV-1107A, HCV1107B, HCV-1108A, HCV-1108B and FW-10 are blocked

D. AFAS will open valves HCV-1107A, HCV-1107B, HCV-1108A and HCV-1108B. FW-10 will not start automatically

Answe: C

CFR Sect: 41.5 / 41.10 / 45.6 / 45.13

Higher Lev: ☑ RO ☑ 4.0 SRO ☑ 4.3

LP Number: 0712-01

LP Objective: 01.05

EXPLAIN the operation of the auxiliary relays (43X/RC2A and 43X/RC-2B) and transfer switches (43/RC-2A and 43/RC-2B) on AI-179.

Question So: Bank — 0712-01 1.5 002 slight rewording

Referen: ASP STM page 8

Attachme: None

Commen: Must realize AFAS is blocked in remote and the effect of that block

Question Nu: 60

System/Mod: 000069

Stem:

Loss of Containment Integrity

KANo: 2.4.50

Description: Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

Quest:

When annunciator window CB-1/2/3, A4, E3, "Personnel Air Lock Door Open" is in alarm, it informs the control room operator that:

A. The outer PAL door is open or ajar

B. The Inner PAL door is open or ajar

C. Both of the PAL doors are open or ajar

D. Either of the PAL doors are open or ajar

Answe: D

CFR Sect: 45.3

Higher Lev: ☐

RO: ☑ 3.3

SRO: ☑ 3.3

LP Number: 0717-12

LP Objective: 01.04

Describe the entry conditions for this AOP.

Question So: New

Referen: ARP CB-1/2/3, A4 window E3

Attachme: None

Commen:

Question Nu: 61

System/Mod: 000074

Stem: Ability to operate and monitor the following as they apply to a Inadequate Core Cooling:

Inadequate Core Cooling

KANo: EA1.21

Description: Condensate storage tank level gauge

Quest

An instrument air line blockage occurs that results in a loss of instrument air to Condensate Makeup valve, LCV-1190, and Condensate Dump valve LCV-1193. Assuming no operator actions were taken, how would Condensate Storage Tank level respond over the next six hours?

A. Condensate Storage Tank level would steadily lower.

B. Condensate Storage Tank level would steadily rise.

C. Condensate Storage Tank level would steadily lower for approximately 4 hours, then begin to lower at a faster rate.

D. Condensate Storage Tank level would steadily rise for approximately 4 hours, then begin to rise at a faster rate.

Answe: C

CFR Sect: 41.7 / 45.5 / 45.6

Higher Lev: ☑ RO ☑ 3.7 SRO ☑ 3.7

LP Number: 0711-04

LP Objective: 01.05

Explain the principles of normal operation of the Condensate System as they apply to flowpaths, major operating parameters and operation of all major control devices.

Question So: New

Referen: CFW STM pages 46 and 47

Attachme: None

Commen: Nitrogen backup will supply LCV-1190 for approximately 4 hours, it will then open fully
Fixed typo in C/D, "then" not "than"

Question Nu: 62

System/Mod: 001000 — Stem: Ability to manually operate and/or monitor in the control room:

Control Rod Drive System

KANo: A4.10 — Description: Determination of an ECP

Quest

In the FCS ECP procedure, a correction may be needed to compensate for changes in the B-10 fraction of the boric acid. Which one of the following situations would be most likely to require such a correction?

A. A startup following a shutdown due to multiple dropped rods

B. A startup following a shutdown to replace a RCP seal package

C. A startup following a shutdown to repair a condenser tube leak

D. A startup following a tech spec required shutdown due to D/G inoperability

Answe: B — CFR Sect:

Higher Lev: ☑ — RO: ☑ 3.5 — SRO: ☑ 3.9

LP Number: 0705-09 — LP Objective: 04.02

LIST the factors affecting critical position or boron concentration including:

Question So: New

Referen: FCS Rx Theory page 94

Attachme: None

Commen

GFE type question but does address sampled K/A

NRC Comment GFE/Non descriminationg. Use graphs, ask graphs, ask how ECP is affected (quantitative)

Replaced question with new question (5-28-01) Replaced with still another new question (6/12/01)
ECP procedure states such a correction may be required following large volume changes such as going to mid-loop (which is required to change a RCP seal package.)

Question Nu: 63

System/Mod: 001000

Stem: Knowledge of the following operational implications as they apply to the CRDS:

Control Rod Drive System

KANo: K5.38

Description: Definition of xenon transient; causes; effects on reactivity

Quest:

The plant is shutting down for a refueling outage following an extended full power run. Reactor power is to be held at approximately 2% to perform turbine overspeed testing. Which one of the following approaches would allow the best reactivity control during this evolution?

A. Ensure that control rods remain as far out as possible during the shutdown. Use wide range nuclear instrumentation to monitor reactor power.

B. Ensure that control rods are adequately inserted into the core during the shutdown. Use wide range nuclear instrumentation to monitor reactor power.

C. Ensure that control rods remain as far out as possible during the shutdown. Use delta-T instrumentation to monitor reactor power.

D. Ensure that control rods are adequately inserted into the core during the shutdown. Use delta-T instrumentation to monitor reactor power.

Answe: B

CFR Sect: 41.5 / 45.7

Higher Lev: ☑ RO ☑ 3.5 SRO ☑ 4.1

LP Number: 0705-09

LP Objective: 01.18

DISCUSS the Xenon worth after a trip curve including:

Question So: New

Referen: OPD-4-19, "Reactivity Management" , page 7

Attachme: None

Commen: Rods must be inserted to be able to counter xenon buildup. Dilution will have minimal effect at EOC. Delta T power may not respond at low power.

Question Nu: 64

System/Mod: 002000

Stem: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RCS controls including:

Reactor Coolant System

KANo: A1.12

Description: Radioactivity level when vending CRDS

Quest:

An operator, who has previously received a TEDE of 720 mrem for the current year, was in containment during RCS venting. During this venting operation, the radioactive gas concentration in containment was estimated to be 15 times the Derived Airborne Concentration. The radiation in the area was 20 mr/hr.The operator was in containment for 2 hours with no respiratory equipment.

What contribution to his TEDE did the operator receive during this evolution and how does his annual dose compare to FCS administrative limits?.

A. The operator received an additional TEDE of 70 mrem for this evolution and is within the FCS annual administrative limits.

B. The operator received an additional TEDE of 70 mrem for this evolution and has exceeded the FCS annual administrative limits.

C. The operator received an additional TEDE of 115 mrem for this evolution and is within the FCS annual administrative limits.

D. The operator received an additional TEDE of 115 mrem for this evolution and has exceeded the FCS annual administrative limits.

Answe: C

CFR Sect: 41.5 / 45.7

Higher Lev: ☑ RO ☑ 2.9 SRO ☑ 3.3

LP Number: 1924-03B

LP Objective: 03.00

EXPLAIN the federal and OPPD limits and guidelines for exposures.

Question So: New

Referen: 10 CFR 20

Attachme: None

Commen:

NRC Comment - GFE as written, ask action to take if limits exceeded.

OPPD Comment - RP not covered in GFE. May reselect new K/A and use this as part of Operating exam

Question changed 6/4/01 to incorporate FCS annual administrative limits

Question Nu: 65

System/Mod: 002000

Stem: Ability to monitor automatic operation of the RCS, including:

Reactor Coolant System

KANo: A3.01

Description: Reactor coolant leak detection system

Quest:

Which one of the following is an indication that Reactor Vessel head O-rings are leaking?

A. High pressure sensed between the O-rings

B. High temperature sensed between the O-rings

C. High level in a standpipe that collects O-ring leakage

D. High flow in a line that directs O-ring leakage to the RCDT

Answe: A

CFR Sect: 41.7 / 45.5

Higher Lev: ☐

RO: ☑ 3.7

SRO: ☐ 3.9

LP Number: 0711-20

LP Objective: 01.03

EXPLAIN the basic functions of the RCS components.

Question So: Bank

0711-20 1.3 001

Referen: RCS STM

Attachme: None

Commen:

Answer can be deduced from application of basic heat transfer. Heat losses become greater at higher system temperatures. With a constant heat input, heatup rate will decrease as temperature rises.NRC Comment - GFE Can reselect K/A

Reselected K/A from same system, use reworded bank question (6/12/01)

Question Nu: 66

System/Mod: 003000

Stem:

Reactor Coolant Pump System

KANo: 2.4.31

Description: Knowledge of annunciators alarms and indications, and use of the response instructions.

Quest:

Annunciator CB-1/2/3, A6, "Reactor Coolant Pump RC-3A Vibration Hi" is in alarm. What action, if any, must be taken to reset the high vibration alarm once the vibration is below the alarm setpoint?

A. The alarm will automatically reset.

B. The alarm can be manually reset at CB-1/2/3.

C. The alarm can be reset at the AI-270 display.

D. The alarm can be reset at a ERF computer terminal.

Answe: C

CFR Sect: 41.10 / 45.3

Higher Lev: ☐

RO: ☑ 3.3

SRO: ☐ 3.4

LP Number: 0711-20

LP Objective: 04.02e

Using the applicable P&ID, IDENTIFY each of the following RCS Instrumentation Subsystems: RC pump instrumentation

Question So: New

Referen: RC STM page 22

Attachme: None

Commen:

NRC Comment - Move common elements to stem, revise answers

OPPD Comment - Same comment as NRC

Question reworded (5/28/01)

Question Nu: 67

System/Mod: 003000

Reactor Coolant Pump System

Stem: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RCPS controls including:

KANo: A1.06

Description: PZR spray flow

Quest:

Pressurizer spray flow is provided from the discharge of Reactor Coolant Pumps _____.

A. RC-3A & RC-3B

B. RC-3A & RC-3C

C. RC-3B & RC-3C

D. RC-3B & RC-3D

Answe: B

CFR Sect: 41.5 / 45.5

Higher Lev: ☐

RO: ☑ 2.9

SRO: ☑ 3.1

LP Number: 0711-20

LP Objective: 01.03

EXPLAIN the basic functions of the RCS components.

Question So: NEW

Referen: RC STM page 43

Attachme: None

Commen:

Question Nu: 68

System/Mod: 004000

Stem: Knowledge of the physical connections and/or cause-effect relationships between the CVCS and the following systems:

Chemical and Volume Control System

KANo: K1.17

Description: PZR

Quest

Plant controls are aligned as follows:

Channel X is selected as the controlling pressurizer level channel, the controller is in CASCADE
CH-1A control switch is in the PULL-TO-LOCK position
CH-1B is running and the control switch is in the AFTER START position
CH-1C is stopped and the control switch is in the AFTER STOP position
Charging pumps mode select switch is in the CH-1A, CH-1B position

What Charging Pumps will be running if LT-101X fails high?

A. No charging pumps will be running

B. Only CH-1B will be running

C. Only CH-1C will be running

D. CH-1B and CH-1C will be running

Answe: B

CFR Sect: 41.2 to 41.9 / 45.7 to 45.8

Higher Lev: ☑

RO: ☑ 3.4

SRO: ☑ 3.4

LP Number: 0711-02

LP Objective: 01.03

EXPLAIN the automatic and manual controls associated with the charging pumps and boric acid pumps.

Question So: Modified

0711-02 1.4 002

Referen: CVCS STM pgs 24-25

Attachme: None

Commen

NRC Comment - C not credible, replace with CH 1C only

Change made (5-31-01)

Question Nu: 69

System/Mod: 004000

Stem: Knowledge of the effect of a loss or malfunction on the following CVCS components:

Chemical and Volume Control System

KANo: K6.09

Description: Purpose of VCT divert valve

Quest

The plant is operating at 100% power. The following plant conditions exist:

One charging pump is operating. 40 gpm charging flow is indicated
Indicated letdown flow is 36 gpm
VCT level as shown on the lever recorder is lowering
Pressurizer pressure and level and RCS temperatures are steady on all indicators
Containment and Aux Building sump levels are steady

Which one of the following could cause these indications?

A. There is a leak in the RCS piping

B. There is a leak in the charging line

C. VCT level switch, LCS-218, has failed high

D. VCT pressure transmitter, PT-220, has failed high

Answe: C

CFR Sect: 41.7 / 45.7

Higher Lev: ☑ RO ☑ 2.8 SRO ☑ 3.1

LP Number: 0711-02

LP Objective: 01.02

EXPLAIN, the manual and automatic functions of control valves in the CVCS.

Question So: New

Referen: CVCS STM pages 20 and 21

Attachme: None

Commen:

Question Nu: 70

System/Mod: 006000

Stem: Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of

Emergency Core Cooling System

KANo: A2.10

Description: Low boron concentration in SIS.

Quest

Which one of the following accidents could potentially have more severe consequences if the boron concentration in the SIRWT was below the Technical Specification Limit?

A. A steam generator tube rupture

B. A steam line break

C. A loss of feedwater

D. A loss of coolant accident

Answe: B

CFR Sect: 41.5 / 45.5

Higher Lev: ☑ RO ☑ 3.4 SRO ☑ 3.9

LP Number: 0715-20

LP Objective: 03.05

EXPLAIN how the steam line break is used in determining the basis for Technical Specification requirements.

Question So: New

Referen: SHB 0715-20 page 13

Attachme: None

Commen:

Question Nu: 71

System/Mod: 006000 — Stem: Knowledge of the effect that a loss or malfunction of the ECCS will have on the following:

Emergency Core Cooling System

KANo: K3.01 — Description: RCS

Quest:

A loss of coolant accident has occurred. All three HPSI pumps have failed to start. All other equipment operates as designed. Which one of the following LOCA events will result in significant fuel damage (beyond the 10 CFR 50.46, ECCS acceptance criteria) without operator action?

A. A 1-inch diameter cold leg break

B. A 8-inch diameter hot leg break

C. A Double-ended cold leg break

D. A Double-ended hot leg break

Answe: A — CFR Sect: 41.7 / 45.6

Higher Lev: ☑ — RO: ☑ 4.1 — SRO: ☐ 4.2

LP Number: 0715-23 — LP Objective: 02.04

EXPLAIN the operator actions required to mitigate a Loss of Coolant Accident.

Question So: New

Referen: SHB 0715-23 page 21

Attachme: None

Commen:

Question Nu: 72

System/Mod: 008000

Stem:

Component Cooling Water System

KANo: 2.4.49

Description: Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

Quest

Component cooling water to the Reactor Coolant Pumps will be isolated:

A. Following any CIAS signal

B. Following a CIAS with CCW pump discharge pressure less than 40 psig for 30 seconds.

C. Following a SIAS with CCW discharge pressure less than 60 psig for 15 seconds

D. Following any SIAS with RCP cooling flow less than 33 gpm for 15 seconds

Answe: B

CFR Sect: 41.10 / 43.2 / 45.6

Higher Lev: ☐

RO: ☑ 4.0

SRO: ☑ 4.0

LP Number: 0711-06

LP Objective: 01.05

EXPLAIN the response of the CCW System to signals from the Engineered Safeguards Control System.

Question So: Modified

0711-06 1.5 005

Referen: CCW STM page 29

Attachme: None

Commen: Position of these valves is checked as standard post trip action.

Question Nu: 73

System/Mod: 010000

Stem: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PZR PCS controls including:

Pressurizer Pressure Control System

KANo: A1.05

Description: Pressure effect on level

Quest

Which one of the following is an indication of void formation in the RCS during natural circulation cooling?

A. Pressurizer level lowering rapidly when directing charging flow to pressurizer auxiliary spray.

B. Pressurizer level rising rapidly when directing charging flow to pressurizer auxiliary spray.

C. Pressurizer level lowering rapidly when directing charging flow to the RCS loops.

D. Pressurizer level rising rapidly when directing charging flow to the RCS loops.

Answe: B

CFR Sect: 41.5 / 45.5

Higher Lev: ☑ RO ☑ 2.8 SRO ☑ 2.9

LP Number: 0715-16

LP Objective: 02.06

EXPLAIN how RCS voids can form during natural circulation and how the operators can recognize and respond to void formation.

Question So: Modified 0711-20 3.7D 002

Referen: LP 0711-20 page 17

Attachme: None

Commen:

Question Nu: 74

System/Mod: 010000

Stem: Knowledge of bus power supplies to the following:

Pressurizer Pressure Control System

KANo: K2.04

Description: Indicator for code safety position

Quest

How can you determine if you have lost power to the acoustic monitor for safety valve, RC-142?

A. All of the lights on the RC-142 module behind CB-1/2/3 will be off

B. The "RC-142 Hi Flow" alarm on CB-1/2/3, A4 will come in

C. The "RC-142 Loss of Indication" alarm on CB-1/2/3, A4 will come in

D. The ERF computer "Loss of RC-142 Instrument Power" alarm will come in

Answe: A

CFR Sect: 41.7

Higher Lev: ☐

RO: ☑ 2.7*

SRO: ☑ 2.9*

LP Number: 0711-20

LP Objective: 04.02h

Using the applicable P&ID, IDENTIFY each of the following RCS Instrumentation Subsystems: Acoustic monitors for the PORVs and safety valves

Question So: New

Referen: RC STM page 45

Attachme: None

Commen:

Question Nu: 75

System/Mod: 011000

Stem: Knowledge of the effect of a loss or malfunction on the following will have on the PZR LCS:

Pressurizer Level Control System

KANo: K6.03

Description: Relationship between PZR level and PZR heater control circuit

Quest:

The plant is operating at steady state 100% power. Channels 101X and 103Y are selected as the controlling channels. How will the actual pressurizer parameters respond if LT-101Y fails low and no operator action is taken?

A. Pressurizer level will remain constant and pressure will rise

B. Pressurizer level will remain constant and pressure will lower

C. Pressurizer level and pressure will rise

D. Pressurizer level and pressure will lower

Answe: B

CFR Sect: 41.7 / 45.7

Higher Lev: ☑

RO: ☑ 2.9

SRO: ☐ 3.3

LP Number: 0711-20

LP Objective: 04.04

EXPLAIN the interlocks and control functions associated with RCS Instrumentation.

Question So: New

Referen: RCS&RR STM page 20

Attachme: None

Commen:

NRC Comment - What does level do in A/B? Could give indication/ask cause.

A/B changed 6/4/01

Question Nu: 76

System/Mod: 012000

Reactor Protection System

Stem: Ability to predict and/or monitor Changes in parameters (to prevent exceeding design limits) associated with operating the RPS controls including:

KANo: A1.01

Description: Trip setpoint adjustment

Quest:

The reactor is stable at 12% power. The turbine has just tripped due to an overspeed test, when a steam dump valve fails wide open causing a power increase. Which one of the following will occur?

A. Power will rise and stablize below 15% power.

B. The reactor will trip when power exceeds 15%.

C. The reactor will trip when power exceeds 19.1%.

D. Power will rise and stablize above 19.1% power.

Answe: B

CFR Sect: 41.5 / 45.5

Higher Lev: ☑ RO ☑ 2.9* SRO ☐ 3.4*

LP Number: 0712-25

LP Objective: 01.09

STATE the NSSS parameters and points that enable, disable and/or permit the following RPS trip functions:

Question So: Modified 0712-25 1.0 001

Referen: RP STM pages 20-21

Attachme: None

Commen:

NRC Comment - Why give that the reactor trips? Give conditions, ask what occurs.
OPPD Comment - Change stem to when will the reactor trip?
Question reworded 6/4/01

Question Nu: 77

System/Mod: 012000

Stem: Ability to monitor automatic operation of the RPS, including:

Reactor Protection System

KANo: A3.05

Description: Single and multiple channel trip indicators

Quest:

The bistables for channel "A" trip units 1, 9 and 12 have been placed in the "tripped" condition. None of the trips are bypassed. Which one of the following instrument failures will result in a reactor trip?

A. "A" channel NIS power range input to the RCS fails high

B. "B" channel pressurizer pressure input to the RCS fails low

C. "C" channel cold leg temperature input to the RCS fails high

D. "D" channel RCS flow input to the RCS fails low

Answe: B

CFR Sect: 41.7 / 45.5

Higher Lev: ☑

RO: ☑ 3.6

SRO: ☐ 3.7

LP Number: 0712-19

LP Objective: 01.12

Explain the difference in the resultant coincidence if one channel in a 2 of 4 logic configuration is bypassed or de-energized.

Question So: Bank

1997 FCS NRC exam question 7

Referen: RP STM pages 9-10

Attachme: None

Commen:

OPPD Comment - no correct answer

Choices B and C changed 6/14/01. B is now correct answer.

Question Nu: 78

System/Mod: 013000

Stem:

Engineered Safety Features Actuation Sy

KANo: 2.1.02

Description: Knowledge of operator responsibilities during all modes of plant operation.

Quest:

According to OPD 4-11, "Policy for When and by What Authority it is Appropriate to Bypass Engineered Safeguards", what are the restrictions on bypassing Engineered Safeguards during EOP events?

A. Engineered Safeguards may not be bypassed unless specifically directed by procedure.

B. Engineered Safeguards may not be bypassed unless the Operators have control of the process to be bypassed.

C. Engineered Safeguards may not be bypassed unless authorized by the Shift Technical Advisor

D. Only one train of Engineered Safeguards may be bypassed at a time.

Answe: B

CFR Sect: 41.10 / 45.13

Higher Lev: ☐

RO: ☑ 3.0

SRO: ☑ 4.0

LP Number:

LP Objective:

Question So: New

Referen: OPD 4-11

Attachme: None

Commen:

NRC Comment - Not responsive to the K/A, non-discriminating Change K/A to match question or replace

Replaced with new question 6/12/01

Question Nu: 79

System/Mod: 013000 — Engineered Safety Features Actuation Sy

Stem: Knowledge of the operational implications of the following concepts as they apply to the ESFAS:

KANo: K5.02

Description: Safety system logic and reliability

Quest:

345KV backfeed has been terminated in preparation for plant startup. Under these conditions, what points in the electrical distribution system are being monitored for initiation of OPLS?

A. The secondary of transformers T1A-1, T1A-2, T1A-3 and T1A-4

B. Bus 1A3, Bus 1A4, and the secondary of transformers T1A-1 and T1A-2

C. Bus 1A3, Bus 1A4, and the secondary of transformers T1A-3 and T1A-4

D. Bus 1A3, Bus 1A4, and the secondary of transformers T1A-1, T1A-2, T1A-3 and T1A-4

Answe: C

CFR Sect: 41.5 / 45.7

Higher Lev: ☑ RO ☑ 2.9 SRO ☑ 3.3

LP Number: 0712-14

LP Objective: 01.04

EXPLAIN how each prime and backup actuation signal is developed.

Question So: Bank — 0712-14

Referen: ESC STM pages 37-39

Attachme: None

Commen: NRC Comment - From memory?

Question Nu: 80

System/Mod: 015000

Stem: Ability to (a) predict the impacts of the following malfunctions or operations on the NIS; and (b based on those predictions, use procedures to correct, control, or mitigate the consequences of

Nuclear Instrumentation System

KANo: A2.03

Description: Xenon oscillations

Quest

A xenon oscillation could best be identified and controlled by trending _____ and is most likely to diverge at the _____ of a cycle.

A. ASI, beginning

B. ASI, end

C. NI-Delta T power mismatch, beginning

D. NI-Delta T power mismatch, end

Answe: B

CFR Sect: 41.5 / 43.5 / 45.3 / 45.5

Higher Lev: ☐

RO: ☑ 3.2

SRO: ☑ 3.5*

LP Number: 0705-09

LP Objective: 02.01

STATE the reasons for limits on axial power distribution.

Question So: New

Referen: FCS Reactor Theory page 101

Attachme: None

Commen:

Question Nu: 81

System/Mod: 015000

Stem: Knowledge of the effect that a loss or malfunction of the NIS will have on the following:

Nuclear Instrumentation System

KANo: K3.01

Description: RPS

Quest:

The plant is operating at 50% power with the trip units associated with the channel A Power Range NI Safety Drawer in bypass. Which one of the following describes the effect deenergizing another power range safety drawer?

A. The reactor will trip

B. The Reactor will trip only if the second drawer is channel C

C. No trip will occur and the trip logic becomes 1 of 2

D. No trip will occur and the trip logic becomes 2 of 2

Answe: C

CFR Sect: 41.7 / 45.6

Higher Lev: ☑ RO ☑ 3.9 SRO ☑ 4.3

LP Number: 0712-19

LP Objective: 01.12

Explain the difference in the resultant coincidence if one channel in a 2 of 4 logic configuration is bypassed or de-energized.

Question So: Bank 0712-19 1.12 002

Referen: RP STM page 37

Attachme: None

Commen:

OPPD Comment - ensure wording indicates that only the NI drwers are deenergized.
Stem wording changed 6/4/01

Question Nu: 82

System/Mod: 016000

Stem:

Non-Nuclear Instrumentation System

KANo: 2.2.22

Description: Knowledge of limiting conditions for operations and safety limits.

Quest

After a calibration check of some instrument channels, it was determined that the plant is operating with the following plant conditions:

T-cold = 552F
Power = 105%
PZR Pressure = 2010 psia

Which one of the following statements is true?

A. The plant may continue to operate. The channels need to be recalibrated within eight hours.

B. The plant must be shutdown within one hour and remain in hot shutdown until the channels are recalibrated.

C. The plant must be shutdown within eight hours and this event reported to the SARC chairperson within 24 hours.

D. The plant must be shutdown within one hour and this event reported to the SARC chairperson within 24 hours.

Answe: D

CFR Sect: 43.2 / 45.2

Higher Lev: ☑

RO: ☐ 3.4

SRO: ☑ 4.1

LP Number: 0762-08

LP Objective: 10.02

Immediate action for a Safety Limit violation

Question So: Modified

0762-08 3.0 001

Referen: Tech Spec section 5.7.1

Attachme: COLR Figure one

Commen:

Question Nu: 83

System/Mod: 016000

Stem: Knowledge of the effect that a loss or malfunction of the NNIS will have on the following:

Non-Nuclear Instrumentation System

KANo: K3.10

Description: CCS

Quest

Which one of the following failures will result in automatic closure of containment cooler inlet and outlet valves to cooling coil VA-1A, HCV-400A/C, with a CIAS signal present?

A. CCW pump discharge pressure switches, PCS-412 and PCS-413, fail low.

B. CCW flow from coil VA-1A, FC-416A, fails low

C. CCW return temperature from coil VA-1A fails high

D. Containment cooling fan, VA-3A, trips.

Answe: B

CFR Sect: 41.7 / 45.6

Higher Lev: ☑ RO ☐ 3.0* SRO ☑ 3.2*

LP Number: 0711-06

LP Objective: 01.05

EXPLAIN the response of the CCW System to signals from the Engineered Safeguards Control System.

Question So: Modified 0762-08 3.0 001

Referen: CCW STM page 34

Attachme: None

Commen:

Question Nu: 84

System/Mod: 017000

Stem: Ability to monitor automatic operation of the ITM system including:

In-Core Temperature Monitor System

KANo: A3.02

Description: Measurement of in-core thermocouple temperatures at panel outside control room

Quest

Representative Core Exit Thermocouple temperature is _____ and can be read _____ when the ERF computer is not working.

A. The highest reading CET temperature for a designated group of CETs, on CB-1/2/3

B. The highest reading CET temperature for a designated group of CETs, on the QSPDS

C. The average CET temperature for a designated group of CETs excluding invalid CETs, on CB-1/2/3

D. The average CET temperature for a designated group of CETs excluding invalid CETs, on the QSPDS

Answe: D

CFR Sect: 41.7 / 45.5

Higher Lev: ☐

RO: ☑ 3.4*

SRO: ☑ 3.1*

LP Number: 0753-02

LP Objective: 01.03

STATE the function of each major component of the QSPDS System.

Question So: New

Referen: QSPDS vendor manual

Attachme: None

Commen:

Question Nu: 85

System/Mod: 017000

Stem: Knowledge of the operational implications of the following concepts as they apply to the ITM system:

In-Core Temperature Monitor System

KANo: K5.03

Description: Indication of superheating

Quest:

Following a loss of coolant accident, the ECCS system has fully actuated. The RCS pressure is 50 psia, Core Exit Thermocouples are reading between 275F and 285F, hot leg temperatures are reading between 520F and 540F and RVLMS = 28%.. The hot leg RTDs indicate:

A. The hot leg RTD's are indicating subcooled temperatures because the core is covered

B. The hot leg RTD's are indicating saturation temperature because the core is covered.

C. The hot leg RTDs are indicating superheated temperatures because the core in uncovered.

D. The hot leg RTDs are indicating superheated temperatures because the pipe walls are uncovered.

Answe: D

CFR Sect: 41.5 / 45.7

Higher Lev: ☑ RO ☑ 3.7 SRO ☑ 4.1

LP Number: 0715-28

LP Objective: 01.16

EXPLAIN how the following instruments respond and can be affected by a degraded core event:

Question So: New

Referen: SHB 0715-23 page 7

Attachme: Steam Tables

Commen:

Question Nu: 86

System/Mod: 022000

Stem: Ability to (a) predict the impacts of the following malfunctions or operationson the CCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of

Containment Cooling System

KANo: A2.01

Description: Fan motor over-current

Quest

An overcurrent condition has occurred for the motor for fan VA-3A. How will the fan respond?

A. The fan will continue to run unless manually tripped by the operator.

B. The fan will trip unless a PPLS or CPHS actuation signal is present

C. The fan will trip unless a CSAS actuation signal is present

D. The fan will trip regardless of any ESF actuation signals.

Answe: D

CFR Sect: 41.5 / 43.5 / 45.3 / 45.13

Higher Lev: ☑

RO: ☑ 2.5

SRO: ☐ 2.7

LP Number: 0714-02

LP Objective: 01.04

Explain automatic controls associated with the Containment Air Cooling and Filtering System.

Question So: New

Referen: CBS&V STM pages 23-24

Attachme: None

Commen:

Question Nu: 87

System/Mod: 022000

Stem: Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following:

Containment Cooling System

KANo: K4.03

Description: Automatic containment isolation

Quest:

A loss of coolant accident has occurred. Containment pressure is 25 psia. All systems are operating as designed. Which one of the following containment cooling systems will have CCW isolated to it?

A. Containment cooling units.

B. Containment cooling and filtering units

C. Detector well cooling

D. CEDM cooling.

Answe: C

CFR Sect: 41.7

Higher Lev: ☑ RO ☑ 3.6* SRO ☐ 4.0

LP Number: 0714-05

LP Objective: 01.07

Explain the principles of emergency operation of the Detector Well Cooling System in terms of flow paths, major parameters (temperature, pressure, flow, etc.), alarms and control devices.

Question So: New

Referen: CCW STM page 35

Attachme: None

Commen:

Question Nu: 88

System/Mod: 026000

Stem: Knowledge of CSS design feature(s) and/or interlock(s) which provide for the following:

Containment Spray System

KANo: K4.09

Description: Prevention of path for escape of radioactivity from containment to the outside (interlock on RWST isolation after swapover)

Quest

The RO reports that the following plant conditions exist following a loss of coolant accident:

RCS Pressure = 700 psia
Containment Pressure = 8 psig
RAS has occurred
HPSI and Containment Spray pumps are operating
LPSI pumps are not running
HCV-385 and HCV-386 are open
LCV-383-1 and LCV-383-2 are closed
HCV-383-3 and HCV-383-4 are open

Which of the following statements is true:

A. All systems are operating as designed.

B. Action must be taken to prevent damage to the HPSI and/or Containment Spray Pumps

C. Action must be taken to provide more ECCS flow

D. Action must be taken to isolate a radiation release path

Answe: D

CFR Sect: 41.7

Higher Lev: ☑ RO ☐ 3.7* SRO ☑ 4.1*

LP Number: 0711-22

LP Objective: 01.08c

Explain overall system response to actuation of automatic engineered safeguards signals: Recirculation Actuation Signal (RAS).

Question So: New

Referen: ECC STM page 26

Attachme: None

Commen

Question Nu: 89

System/Mod: 034000

Stem: Ability to manually operate and/or monitor in the control room:

Fuel Handling Equipment System

KANo: A4.02

Description: Neutron levels

Quest

During refueling operations, a new fuel assembly was inserted into the core. The following counts were recorded prior to insertion of the assembly: (Channels A, B & C are connected to scaler-timers

A = 262 B = 290 C = 308 D = 228

After insertion of the assembly, the following counts were observed:

A = 270 B = 0 C = 312 D = 232

Can the next fuel assembly be inserted into the core?

A. Yes, only two channels of counts are required to proceed

B. Yes, but only with written permission from the Reactor Engineer

C. No, the bundle should be withdrawn to observe the affect on countrate

D. No, since the base counts were taken on three channels, a new base count should be taken on two channels

Answe: A

CFR Sect: 41.7 / 45.5 to 45.8

Higher Lev: ☑

RO: ☑ 3.5

SRO: ☑ 3.9

LP Number: 0711-13

LP Objective: 03.00

List the responsibilities of the Control Room during a refueling.

Question So: Bank

RQL LR-OP-11-RO 001 counts changed

Referen: TS 2.8.1(2)

Attachme: None

Commen

Question Nu: 90

System/Mod: 034000

Stem: Knowledge of the effect of a loss or malfunction on the following will have on the Fuel Handling System :

Fuel Handling Equipment System

KANo: K6.02

Description: Radiation monitoring systems

Quest:

Core reload is in progress

Which one of the following situations would require immediate suspension and not allow further fuel handling activities as per Technical Specifications until the situation is remedied.

A. The running Low Pressure safety Injection pump is stopped for 22 minutes to allow inserting a fuel bundle near the loop 2 hot leg

B. RM-052 and RM-062 become inoperable

C. All of the Aux building supply fans become inoperable

D. RM-091A and RM-091B become inoperable

Answe: B

CFR Sect: 41.7 / 45.7

Higher Lev: ☑

RO: ☐ 2.6

SRO: ☑ 3.3

LP Number: 0711-13

LP Objective: 02.01

Discuss the prerequisites and precautions associated with fuel handling equipment and the refueling machine.

Question So: Modified

0711-13 2.1 002

Referen: TS 2.8.2(3), 2.8.3(5) and bases

Attachme: None

Commen:

NRC Comment - B correct? Answer not supported by ref.

OPPD comment - B is the correct answer.

Answer changed to B (5-28-01)

Question Nu: 91

System/Mod: 035000

Stem: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the S/GS controls including:

Steam Generator System

KANo: A1.01

Description: S/G wide and narrow range level during startup, shutdown, and normal operations

Quest:

Choose the statement below that best describes the response of the Feedwater Regulating System to a High Steam Generator Level Condition (85% Narrow Range)

A. FIC 1101/1102 controller will remain in AUTO and the signal from the Level Control Block (FRV Demand) is interrupted by contact opening causing the FRV to close.

B. FIC 1101/1102 controller is shifted to MANUAL and the signal from the Level Control Block (FRV Demand) is interrupted by contact opening causing the FRV to close.

C. FIC 1101/1102 controller will remain in AUTO and the signal from the Level Control Block (FRV Demand) is grounded causing the FRV to close.

D. FIC 1101/1102 controller is shifted to MANUAL and the signal from the Level Control Block (FRV Demand) is grounded causing the FRV to close.

Answe: B

CFR Sect: 41.5 / 45.5

Higher Lev: ☐

RO: ☑ 3.6

SRO: ☑ 3.8

LP Number: 0711-11

LP Objective: 02.04

EXPLAIN "tracking" as it applies to the Feedwater Control System.

Question So: Bank

0711-11 2.4 002 corrected

Referen: F&C STM page 38

Attachme: None

Commen:

NRC Comment - A/C not credible. Edit to "remain in auto" (wasn't controller in auto already?) Not responsive to KA. Ask system not component level question.
Distractors A/C changed 6/4/01

Question Nu: 92

System/Mod: 035000 Stem: Knowledge of S/GS design feature(s) and/or interlock(s) which provide for the following:

Steam Generator System

KANo: K4.02 Description: S/G level indication

Quest

As Control Room Operator you are controlling S/G Level using LIC 903Y/906Y, in MANUAL Mode, via the Feedwater Bypass Valves HCV-1105/1106. The setpoint knob was originally set for 65% as a level setpoint. On monitoring S/G Level you notice a "large" positive deviation indicated on the deviation meter.

CHOOSE the statement below that best describes your actions regarding LIC-903Y/906Y.

A. Turn the setpoint knob to a higher setpoint which will bring the level back to 65%

B. Turn the setpoint knob to a lower setpoint which will bring the level back to 65%

C. Move the MANUAL control in small increments to the right [open valve] and restore the deviation to zero in small steps

D. Move the MANUAL control in small increments to the left [close valve] and restore the deviation to zero in small steps

DELETED POST-EXAM CFR Sect: 41.7

Higher Lev ☐ RO ☑ 3.2 SRO ☐ 3.5

LP Number: 0711-11 LP Objective: 02.04

EXPLAIN "tracking" as it applies to the Feedwater Control System.

Question So: Bank 0711-11 2.4 003

Referen: &C STM pages 34-35

Attachme: None

Commen

NRC Comment - A,B not responsive to the question

Add "positive deviation" to the stem. Change distractors C&D 6/4/01

Question Nu: 93

System/Mod: 039000

Stem: Ability to manually operate and/or monitor in the control room:

Main and Reheat Steam System

KANo: A4.01

Description: Main steam supply. valves

Quest

What would be the result if the 74 degrees open limit switch failed during opening of a Main Steam Isolation Valve?

A. The MSIV would reclose

B. An Asymmetric steam generator trip signal would be generated

C. A Turbine trip signal would be generated

D. The MSIV would take longer than usual to open

Answe: D

CFR Sect: 41.7 / 45.5 to 45.8

Higher Lev: ☑ RO ☑ 2.9* SRO ☑ 2.8*

LP Number: 0711-17

LP Objective: 01.04

EXPLAIN the indications, automatic actions, operating logic, alarm setpoints, interlocks and permissives associated with the Main Steam Instrumentation System.

Question So: New

Referen: MS&SG STM page 22

Attachme: None

Commen:

Question Nu: 94

System/Mod: 039000

Stem: Knowledge of MRSS design feature(s) and/or interlock(s) which provide for the following:

Main and Reheat Steam System

KANo: K4.06

Description: Prevent reverse steam flow on steam line break

Quest:

Which one of the following steam line break locations will result in the greatest RCS cooldown (lowest RCS temperature) if both MSIVs fail in the open position?

A. On the "A" steam line, in containment, upstream of the flow restrictor.

B. On the "B" steam line, in containment, just inside of the containment wall.

C. On the "A" steam line, in room 81, just outside of the containment wall.

D. On the "B" steam line, downstream of room 81, just outside the control room door.

Answe: D

CFR Sect: 41.7

Higher Lev: ☑ RO ☑ 3.3 SRO ☐ 3.6

LP Number: 0715-20

LP Objective: 02.03

EXPLAIN the automatic actions that would be taken by Fort Calhoun systems to mitigate an Excessive Heat Removal Event.

Question So: New

Referen: SHB 0715-20 page 11

Attachme: None

Commen:

Check valves will only allow one S/G to blowdown for choices A, B and C. They will both blowdown for choice D.
NRC Comment - modify stem - greatest initial cooldown rate
OPPD Comment - A may also be correct if reworded as NRC suggests
Added (lowest RCS temperature) to stem to differentiate from cooldown rate.

Question Nu: 95

System/Mod: 041000

Stem:

Steam Dump System and Turbine Bypas

KANo: 2.4.49

Description: Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

Quest:

Which one of the following situations requires taking manual control of the condenser steam dump and bypass valves (TCV-909's and PCV-910) to maintain RCS T-cold at approximately 532 degrees F following a reactor trip?

A. A loss of instrument air pressure.

B. A loss of condenser vacuum

C. A loss of all Reactor Coolant Pumps

D.A loss of all Main Feedwater pumps

Answe: C

CFR Sect: 41.10 / 43.2 / 45.6

Higher Lev: ☑ RO ☑ 4.0 SRO ☑ 4.0

LP Number: 0715-16

LP Objective: 02.03

EXPLAIN the operator actions required to monitor and maintain subcooled natural circulation.

Question So: New

Referen: SHB 0715-16 page 11

Attachme: None

Commen:

Steam dump and bypass valves will open due to the rise in RCS average temperature as natural circulation is developing.

Question Nu: 96

System/Mod: 041000

Stem: Knowledge of the operational implications of the following concepts as the apply to the SDS:

Steam Dump System and Turbine Bypas

KANo: K5.04

Description: Basis for plant cooldown rates

Quest:

The Technical Specification Minimum Boltup temperature limitation of 82F is designed to prevent brittle fracture of:

A. The Reactor Vessel beltline welds

B. The Reactor Vessel flange

C. The Reactor Vessel cold leg nozzles

D. The Reactor Vessel hot leg nozzles

Answe: B

CFR Sect: 41.5 / 45.7

Higher Lev: ☐

RO: ☐ 2.4

SRO: ☑ 3.1

LP Number: 0711-20

LP Objective: 02.02

EXPLAIN the basis for the RCS heatup and cooldown curves and STATE the limits.

Question So: New

Referen: Tech Spec basis 2.1.2

Attachme: None

Commen:

Although not referenced to section 43, the basis for Tech Spec cooldown rates is SRO level.

NRC Comment - better if mode of failure not asked. Replace C,D with other components.

Question changed (5-28-01)

Question Nu: 97

System/Mod: 045000

Stem:

Main Turbine Generator System

KANo: 2.4.49

Description: Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

Quest:

Which of the following actions should be taken first if both automatic and manual Main Turbine trip fails?

A. Open the generator output breakers

B Open the exciter field breaker

C. Close the MSIVs

D. Trip the EHC pumps.

Answe: D

CFR Sect: 41.10 / 43.2 / 45.6

Higher Lev: ☐

RO: ☑ 4.0

SRO: ☑ 4.0

LP Number: 0718-10

LP Objective: 01.11

GIVEN a set of plant conditions and a copy of EOP-00, DETERMINE the appropriate response to the plant conditions. Both the corrective actions required and any other EOP's referred to by the procedure must be included.

Question So: New

Referen: EOP-00 page 6

Attachme: None

Commen:

Choice D is preferred to choice C because it allows use of condenser dump and bypass valves.

OPPD Comment- Change to which action should be taken first to eliminate possible argument for C

Question changed (5-28-01)

Question Nu: 98

System/Mod: 045000

Stem: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MT/G system controls including:

Main Turbine Generator System

KANo: A1.06

Description: Expected response of secondary plant parameters following T/G trip

Quest

Which one of the following statements describes the response of the Feedwater Regulating System to a Turbine Trip?

A. The FIC (SPEC 200) rampdown function generates an 8% output to the Feedwater Regulating Valve (FRV) and the FRV closes to 8% of full open which corresponds to 5% of full power flow.

B. The FIC (SPEC 200) rampdown function generates an 5% output to the Feedwater Regulating Valve (FRV) and the FRV closes to 5% of full open which corresponds to 8% of full power flow.

C. The FIC (SPEC 200) rampdown function interrupts the output of the Flow Control Block and the FRV closes to 8% of full open which corresponds to 5% of full power flow.

D. The FIC (SPEC 200) rampdown function interrupts the output of the Flow Control Block and the FRV closes to 5% of full open which corresponds to 8% of full power flow.

Answe: A

CFR Sect: 41.5 / 45.5

Higher Lev: ☐

RO: ☑ 3.3

SRO: ☐ 3.7

LP Number: 0711-11

LP Objective: 02.05

EXPLAIN the operation of the Feedwater Control System following a turbine trip.

Question So: Bank

0711-11 2.5 001 choices reordered

Referen: F&C STM pages 37 and 38

Attachme: None

Commen:

Question Nu: 99

System/Mod: 055000

Stem:

Condenser Air Removal System

KANo: 2.1.30

Description: Ability to locate and operate components, including local controls.

Quest

The standby vacuum pump started on lowering vacuum. What action, if any, is required to stop the standby vacuum pump once proper vacuum is restored?

A. The standby vacuum pump will shut off automatically once vacuum is restored.

B. The standby vacuum pump can be stopped using the local pushbutton. But it will not automatically restart unless it is shutdown from the control room.

C. The standby pump can be stopped using the control room switch, but must be locally reset before autostart capability is restored.

D. The standby pump can be stopped using either the control room switch or the local pushbutton. It will autostart if needed.

Answe: D

CFR Sect: 41.7 / 45.7

Higher Lev: ☐

RO: ☑ 3.9

SRO: ☑ 3.4

LP Number: 0711-05

LP Objective: 01.02

EXPLAIN the operation of controllers located in the Control Room associated with the Condenser Air Removal System.

Question So: Modified

0711-05 1.2 002

Referen: CE STM pages 4-5

Attachme: Non

Commen:

Question Nu: 100

System/Mod: 055000

Stem: Knowledge of the physical connections and/or cause-effect relationships between the CARS and the following systems:

Condenser Air Removal System

KANo: K1.06

Description: PRM system

Quest:

What radionuclide is responsible for the high sensitivity of RM-057 in detecting primary to secondary leakage?

A. N-16

B. I-131

C. Xe-133

D. U-238

Answe: C

CFR Sect: 41.2 to 41.9 / 45.7 to 45.8

Higher Lev: ☐

RO: ☑ 2.6

SRO: ☐ 2.6

LP Number: 0712-03

LP Objective: 01.04

LIST the systems and components that interface with the Radiation Monitoring System.

Question So: New

Referen: SHB -0715-33

Attachme: None

Commen:

Question Nu: 101

System/Mod: 059000

Stem: Ability to monitor automatic operation of the MFW, including:

Main Feedwater System

KANo: A3.05

Description: Starts and stops on the main feed pumps

Quest

The plant is operating at 100% power. FW-4A and FW-4B are operating, when a LOCA occurs in containment. RCS pressure drops to 800 psia and containment pressure rises to 12 psia. During standard post-trip actions, the RO reports that all three Feedwater Pumps are tripped and that the 43-SIAS/FW4 switch was incorrectly placed in the FW-4C position. The RO requests permission to restart a main feedwater pump. What direction do you give him?

A. Direct the RO to establish auxiliary feedwater flow because it is not possible to start a main Feedwater Pump in this condition

B. Direct the RO to establish auxiliary feedwater flow because starting a main Feedwater pump will cause OPLS to actuate

C. Direct the RO to ensure that the 43/FW switch is the "OFF" position and start FW-4C

D. Direct the RO to place the 43-SIAS/FW4 switch in the 'FW-4B" position and restart FW-4B

Answe: A

CFR Sect: 41.7 / 45.5

Higher Lev: ☑ RO ☐ 2.4* SRO ☑ 2.7*

LP Number: 0711-11

LP Objective: 02.03

EXPLAIN the automatic features and interlocks associated with the feedwater components.

Question So: New

Referen: Feedwater and Condensate STM page 32

Attachme: None

Commen

Combination of RCS and Containment pressures will produce a CSAS which sends a trip signal to all three Feed Pumps.

OPPD Comment - Change B to "Direct RO to establish aux feed, attempting to start A main feedwater pump will cause OPLS to actuate.

Choice B changed (5-28-01)

Question Nu: 102

System/Mod: 059000 Stem: Ability to monitor automatic operation of the MFW, including:

Main Feedwater System

KANo: A3.06 Description: Feedwater isolation

Quest:

A Steam Generator Isolation Signal (SGIS) has isolated Feed Water to both Steam Generators. All Main Feedwater pumps are tripped. FW-6 is running. Which one of the following actions result in water being provided to FW-2B's Feed Ring?

A. Open HCV-1384, Override and Open HCV-1104 and FCV-1102

B. Open HCV-1384, Override and Open HCV-1385 and HCV-1106

C Open HCV-1385, Override and Open HCV-1104 and FCV-1102

D. Open HCV-1385, Override and Open HCV-1104 and HCV-1106

Answe: B CFR Sect: 41.7 / 45.5

Higher Lev: ☑ RO: ☑ 3.2* SRO: ☐ 3.3

LP Number: 0711-11 LP Objective: 02.03

EXPLAIN the automatic features and interlocks associated with the feedwater components.

Question So: Modified 0711-11 2.3 008

Referen: AFW STM - AFW diagram

Attachme: None

Commen:

Question Nu: 103

System/Mod: 061000 — Auxiliary / Emergency Feedwater System

Stem: Ability to monitor automatic operation of the AFW, including:

KANo: A3.02

Description: RCS cooldown during AFW operations

Quest:

AFAS was lined up for normal operation (emergency standby) and a cooldown transient resulted in the following plant conditions:

S/G A level = 30% WR S/G A pressure = 710 psia

S/G B level = 28% WR S/G B pressure = 480 psia

AFW is being supplied to both Steam Generators.

What action should the CRS direct the RO to take?

A. Continue to feed both Steam Generators.

B. Isolate AFW to both Steam Generators

C. Isolate AFW to Steam Generator "A"

D. Isolate AFW to Steam Generator "B"

Answe: D

CFR Sect: 41.7 / 45.5

Higher Lev: ☑ RO ☐ 4.0 SRO ☑ 4.0

LP Number: 0711-01

LP Objective: 01.07

EXPLAIN the automatic operations of AFW System components.

Question So: Bank — 0711-01 1.7 001 cleaned up

Referen: ESC STM page 31

Attachme: None

Commen:

NRC Comment- not SRO only. Add malfunction ask for procedural action.
Question changed 6/4/01

Question Nu: 104

System/Mod: 061000

Stem: Knowledge of bus power supplies to the following:

Auxiliary / Emergency Feedwater System

KANo: K2.03

Description: AFW diesel driven pump

Quest

A reactor startup is in progress. FW-54 is being used as a feedwater source. If a loss of offsite power occurs and DG-2 fails to start, how will power be supplied to MCC-4C6 to power FW-54 auxiliaries?

A. Power will automatically be supplied from D/G-1 via MCC-4C5

B. Power will automatically be supplied from FW-54's shaft driven generator

C. Power will be supplied from D/G-1 via MCC-4C5 after transfer switch EE-55 is manually operated

D. Power will be supplied from FW-54's shaft driven generator after transfer switch EE-55 is manually operated

Answe: B

CFR Sect: 41.7

Higher Lev: ☑ RO ☑ 4.0* SRO ☑ 3.8*

LP Number: 0711-01

LP Objective: 01.10

DESCRIBE the operational conditions associated with the operation of each of the three AFW pumps: FW-6, FW-10, and FW-54.

Question So: New

Referen: ED STM page 89

Attachme: None

Commen:

Question Nu: 105

System/Mod: 061000

Stem: Knowledge of the effect of a loss or malfunction of the following will have on the AFW components:

Auxiliary / Emergency Feedwater System

KANo: K6.01

Description: Controllers and positioners

Quest

With an AFAS present, throttling the AFW Control Valve HCV-1107B using the hand controller on CB-10, requires the four-position switch on AI-66A to be selected to:

A. CLOSE

B. RESET

C. AUTO

D. OPEN

Answe: A

CFR Sect: 41.7 / 45.7

Higher Lev: ☐

RO: ☑ 2.5

SRO: ☐ 2.8*

LP Number: 0711-01

LP Objective: 01.02

EXPLAIN the operation of controls located in the Control Room associated with AFW components.

Question So: Bank — 0711-01 1.2 001

Referen: AFW STM page 27

Attachme: None

Commen:

Question Nu: 106

System/Mod: 062000

Stem:

A.C. Electrical Distribution

KANo: 2.1.27

Description: Knowledge of system purpose and or function.

Quest:

AOP-31 covers the situation where all 4160V buses are fed from the 22KV system. The reason special operations are required under these circumstances is that:

A. All ESF loads are being supplied by only one off-site power supply.

B. Fault current may exceed the maximum current interrupting capability of the supply breakers.

C. Transformer faults may overload the supply bus.

D. Differential voltages may develop if the loads are not balanced between transformers

Answe: B

CFR Sect: 41.7

Higher Lev: ☑ RO ☑ 2.8 SRO ☑ 2.9

LP Number: 0713-02

LP Objective: 01.07

State any special limitations on the 4160 Volt System.

Question So: Bank 0713-02 1.7 001

Referen: AOP-31 page 17

Attachme: None

Commen:

Question Nu: 107

System/Mod: 062000

A.C. Electrical Distribution

Stem: Ability to (a) predict the impacts of the following malfunctions or operations on the ac distribution system; and (b) based on those predictions, use procedures to correct, control, or mitigate the

KANo: A2.10

Description: Effects of switching power supplies on instruments and controls

Quest

With a normal electrical system lineup, which one of the following statements would be true if instrument inverter "C" failed?

A. Power would be lost to instrument bus "C" until manually restored.

B. The supply for instrument bus "C" would automatically switch to the bypass transformer for inverter "C"".

C. The cross tie breakers between instrument buses "A" and "C" would automatically close to supply instrument bus "C".

D. The cross tie breakers between instrument buses "1" and "C" would automatically close to supply instrument bus "C".

Answe: B

CFR Sect: 41.5 / 43.5 / 45.3 / 45.13

Higher Lev: ☐

RO: ☑ 3.0

SRO: ☐ 3.3

LP Number: 0713-04

LP Objective: 01.03

List the primary (preferred) and alternate (if any) power supplies to each bus/component.

Question So: Bank 0713-04 1.3 004

Referen: ED STM page 75

Attachme: None

Commen:

Question Nu: 108

System/Mod: 064000

Stem:

Emergency Diesel Generators

KANo: 2.1.23

Description: Ability to perform specific system and integrated plant procedures during all modes of plant operation.

Quest:

What does the red light above the EDG Breaker Auto Close Test Switch Indicate?

A. It indicates when the auto closure relay picks up in response to the test switch.

B. It indicates the occurrence of a "Breaker Off AUTO" alarm

C. It indicates the breaker is in the test position

D. It indicates that the Breaker Protection Mode Test Switch is positioned incorrectly

Answe: A

CFR Sect: 45.2 / 45.6

Higher Lev: ☐

RO: ☑ 3.9

SRO: ☑ 4.0

LP Number: 0713-05

LP Objective: 01.13a

Explain the use of the instrumentation and controls at CB-20 and AI-30. Include in your explanation the following: Interpretation of indication lights.

Question So: Bank — 0713-05 1.13A 001

Referen: EDG STM page 30

Attachme: None

Commen:

Question Nu: 109

System/Mod: 064000

Stem: Ability to manually operate and/or monitor in the control room:

Emergency Diesel Generators

KANo: A4.06

Description: Manual start, loading, and stopping of the ED/G

Quest

What is the result of placing the 183 Master Emergency Switch in the Emergency Mode at AI-133 A/B?

A. The Diesel-Generator will immediately start and go to idle speed. If associated bus voltage is low, it will go to full speed.

B. The Diesel-Generator will start and go to full speed, even if the associated bus voltage is normal.

C. All automatic starts will be disabled. The Diesel-Generator can be started manually locally and from the control room

D. All automatic starts will be disabled. The Diesel-Generator can be started manually locally but not from the control room.

Answe: D

CFR Sect: 41.7 / 45.5 to 45.8

Higher Lev: ☐

RO: ☑ 3.9

SRO: ☑ 3.9

LP Number: 0713-05

LP Objective: 01.17

Explain the effect of the 183MES switch on control and operation of the EDG. Include in your explanation:

Question So: Modified

0713-05 1.17 001

Referen: EDG STM page 44

Attachme: None

Commen:

Question Nu: 110

System/Mod: 068000

Stem: Ability to (a) predict the impacts of the following malfunctions or operations on the Liquid Radwaste System ; and (b) based on those predictions, use procedures to correct, control, or mitigate the

Liquid Radwaste System

KANo: A2.02

Description: Lack of tank recirculation prior to release

Quest:

A sample was taken from the waste monitor tank prior to discharge. A release permit. Including the RM-055 setpoints, was prepared based on that sample. A few minutes after the release was initiated with the monitor tank pump selector switch in LEVEL, the running monitor tank pump tripped and HCV-691 and HCV-692 closed. Which one of the following was the most likely cause?

A. A VIAS signal was received during the release

B. One of the monitor tank inlet valves was not closed prior to the release

C. The release flow rate was too low

D. The monitor tank was not recirculated adequately

Answe: D

CFR Sect: 41.5 / 43.5 / 45.3 / 45.13

Higher Lev: ☑

RO: ☑ 2.7*

SRO: ☑ 2.8*

LP Number: 0711-32

LP Objective: 01.01

Explain the normal operation of the WDLS, including normal flowpath and parameters.

Question So: New

Referen: WD STM page 17

Attachme: None

Commen:

NRC Comment - B correct?

Choice B would not have allowed the release to even begin.

Question Nu: 111

System/Mod: 068000

Stem: Knowledge of the physical connections and/or cause effect relationships between the Liquid Radwaste System and the following systems:

Liquid Radwaste System

KANo: K1.02

Description: Waste gas vent header

Quest:

Inside containment, water collected in the waste gas vent header can be directly drained to _____.

A. The Containment Sump

B. The Reactor Coolant Drain Tank (RCDT)

C. The Pressurizer Quench tank (PQT)

D. The Safety Injection Tanks (SITs)

Answe: B

CFR Sect: 41.2 to 41.9 / 45.7 to 45.8

Higher Lev: ☐

RO: ☑ 2.5

SRO: ☐ 2.6

LP Number: 0711-32

LP Objective: 01.01

Explain the normal operation of the WDLS, including normal flowpath and parameters.

Question So: New

Referen: WD STM page 4

Attachme: None

Commen:

NRC Comment - Required from memory to know WD-199 vice WD-747 and flowpath?

Stem and distractor changed (6/12/01)

Question Nu: 112

System/Mod: 071000

Stem: Ability to manually operate and/or monitor in the control room:

Waste Gas Disposal System

KANo: A4.30

Description: Water drainage from the WGOS decay tanks

Quest:

The "Moisture Separator WD-28A HI/LO Level" alarm was received on AI-100. The EONA noted that the level in the sight glass was high and that valves LC-533A and LC-533B were both open. What action should be taken?

A. Trip the waste gas compressor

B. Open WD-216 to drain the moisture separator

C. Isolate Demineralized water to the moisture separator

D. Isolate the gas analyzer from the system

Answe: C

CFR Sect: 41.7 / 45.5 to 45.8

Higher Lev: ☑ RO ☑ 2.9* SRO ☑ 2.6*

LP Number: 0711-31

LP Objective: 01.02

EXPLAIN the operation of controls located in the Control Room associated with the Waste Disposal (Gas) System.

Question So: New

Referen: ARP-AI100/A50

Attachme: None

Commen:

NRC Comment - required from memory

Operator should be able to deduce that drain valve is open due to high level and demin water makeup valve has failed open.

Question Nu: 113

System/Mod: 071000

Stem: Knowledge of the physical connections and/or cause-effect relationships between the Waste Gas Disposal System and the following systems:

Waste Gas Disposal System

KANo: K1.06

Description: ARM and PRM systems

Quest

In accordance with the Waste Gas Release procedure {OI-WDG-2}, which one of the following conditions would require immediate termination of a waste gas release?

A. The stack radiation monitor becomes inoperable

B. The stack radiation monitor goes into alarm

C. The waste gas flow rate recorder fails

D. The wind direction or stability class changes

Answe: B

CFR Sect: 41.2 to 41.9 / 45.7 to 45.8

Higher Lev: ☐

RO: ☑ 3.1*

SRO: ☑ 3.1

LP Number: 0711-31

LP Objective: 03.03

Using OI-WDG-2 and other plant references, EXPLAIN conditions that would require immediate termination of a waste gas release.

Question So: Bank 0711-31 3.3 001

Referen: OI-WDG-2 page 1

Attachme: None

Commen: NRC Comment - Verify other answers are incorrect.

Question Nu: 114

System/Mod: 072000

Stem:

Area Radiation Monitoring System

KANo: 2.1.32

Description: Ability to explain and apply all system limits and precautions.

Quest:

Where can you find the alert and alarm setpoints for the area radiation monitors?

A. In the Technical Data Book

B. In Technical Specifications

C. In the Offsite Dose Calculation Manual

D. In OI-RM-01

Answe: A

CFR Sect: 41.10 / 43.2 / 45.12

Higher Lev: ☐

RO: ☑ 3.4

SRO: ☐ 3.8

LP Number: 0712-03

LP Objective: 01.00

EXPLAIN the principle purposes of the Radiation Monitoring System.

Question So: New

Referen: TDB

Attachme: None

Commen:

NRC Comment - Verify C always incorrect, wince wording of A is questionable for correct answer.

OPPD Comment - can you argue for C

New question written (6/12/01)

Question Nu: 115

System/Mod: 072000

Stem: Ability to manually operate and/or monitor in the control room:

Area Radiation Monitoring System

KANo: A4.01

Description: Alarm and interlock setpoint checks and adjustments

Quest:

A source check is being performed on Containment Noble Gas Monitor (RM-051). During this test, the digital display will indicate increasing counts,:

A. Annuciator "RM-051 CNTMT NOBLE GAS HIGH RADIATION" will alarm and CRHS will occur if the monitor is not in keypad

B. Annuciator "RM-051 CNTMT NOBLE GAS HIGH RADIATION" will alarm but CRHS will not occur

C. Annuciator "RM-051 CNTMT NOBLE GAS HIGH RADIATION" will not alarm but CRHS will occur if the monitor is not in keypad

D. Annuciator "RM-051 CNTMT NOBLE GAS HIGH RADIATION" will not alarm and CRHS will not occur

Answe: D

CFR Sect: 41.7 / 45.5 to 45.8

Higher Lev: ☑ RO ☑ 3.0* SRO ☑ 3.3

LP Number: 0712-03

LP Objective: 04.00

EXPLAIN the operations, actuations and applications of the individual radiation monitors.

Question So: Modified 0712-03 4.0 003

Referen: RM STM pages 14-15

Attachme: None

Commen:

Note: K/A system addresses area monitors but KA description is more applicable to process monitors at FCS.

Check typs A/C of the monitor "in not in"

Typo fixed (5-28-01)

Question Nu: 116

System/Mod: 078000

Stem: Knowledge of the effect that a loss or malfunction of the IAS will have on the following:

Instrument Air System

KANo: K3.02

Description: Systems having pneumatic valves and controls

Quest:

Instrument Air Containment Isolation Valves, 1849A and 1849B, have automatically closed during a plant event which resulted in a CIAS and loss of instrument air pressure. Following the event, CIAS was reset and Instrument air pressure was raised to 75 psig. The operator attempted to open 1849A, but it would not open. What additional action must be taken before PCV-1849A will open?

A. PCV-1849B must be opened

B. PCV-1753 must be opened

C. PCV-1749A &B must be opened

D. Instrument air pressure must be raised above 80 psig

Answe: A

CFR Sect: 41.7 / 45.6

Higher Lev: ☑

RO: ☑ 3.4

SRO: ☐ 3.6

LP Number: 0711-07

LP Objective: 01.05

Explain the principles of Abnormal operation of the Compressed Air System in terms of flow paths, major parameters, (temperature, pressure, flow, etc.), alarms and control devices.

Question So: New

Referen: S & IA STM page 11

Attachme: None

Commen: NRC Comment - Valve names needed?

Question Nu: 117

System/Mod: 078000

Stem: Knowledge of IAS design feature(s) and/or interlock(s) which provide for the following:

Instrument Air System

KANo: K4.03

Description: Securing of SAS upon loss of cooling water

Quest

All off-site power has been lost. D1 and D2 have re-energized buses 1A3 and 1A4. What action must be taken to restart an air compressor?

A. No action is needed. The standby air compressor will start when the Diesel Generator energizes the 480V buses.

B. Start a Bearing Water Pump from the control room, then restart the air compressor using the control room switches

C. Start a Bearing Water Pump from the control room, then send the Water Plant Operator to locally start an air compressor

D. Send the Water Plant Operator to room 19 to establish backup cooling and locally start an air compressor

Answe: B

CFR Sect: 41.7

Higher Lev: ☑

RO: ☑ 3.1*

SRO: ☐ 3.3*

LP Number: 0711-07

LP Objective: 01.03

State the power supply for the air compressors.

Question So: Bank — 0711-07 1.3 002 reworded

Referen: TPCW STM page 9

Attachme: None

Commen

Is B a local/control room/or either start of the BRG water pump?

Reworded (5/28/01)

Question Nu: 118

System/Mod: 086000

Stem: Knowledge of the physical connections and/or cause-effect relationships between the Fire Protection System and the following systems:

Fire Protection System

KANo: K1.01

Description: High-pressure service water

Quest:

Following a loss of the Raw Water System, backup cooling is being provided to the CCW heat exchangers using the Fire Protection System. What should be the final position of the Raw Water inlet valves (HCV-2880A through HCV-2883A) and the outlet valves (HCV-2880B through HCV-2883B) for the selected heat exchanger?

A Inlet and Outlet valves should both be closed

B. Inlet and Outlet valves should both be open

C. The inlet valves should be open and the outlet valves closed

D. The inlet valves should be closed and the outlet valves open

Answe: D

CFR Sect: 41.2 to 41.9 / 45.7 to 45.8

Higher Lev: ☐

RO: ☑ 3.0*

SRO: ☑ 3.4*

LP Number: 0711-19

LP Objective: 03.00

Using the simulator, WALKTHROUGH the procedure to shut down the Raw Water System in accordance with OI-RW-2.

Question So: Bank

0711-19 3.0 001 choice order changed

Referen: AOP-18 pages 14-15

Attachme: None

Commen:

NRC Comment - Required from memory?

Question Nu: 119

System/Mod: 103000

Stem: Ability to (a) predict the impacts of the following malfunctions or operations on the containment system and (b) based on those predictions, use procedures to correct, control, or mitigate the

Containment System

KANo: A2.04

Description: Containment evacuation (including recognition of the alarm)

Quest:

According to Standing Order O-21, with fuel in the reactor vessel, the Containment Equipment Hatch should not be opened unless it can be closed prior to reaching bulk boiling in the RCS. What is the basis for this requirement?

A. Bulk boiling in the RCS may result in the immediate release of fission products

B. Once bulk boiling starts, containment pressure may prevent closing the equipment hatch

C. Steam produced by the bulk boiling may render the containment charcoal filters ineffective

D. With a positive void coefficient, bulk boiling may result in a loss of shutdown margin

Answe: B

CFR Sect: 41.5 / 43.5 / 45.3 / 45.13

Higher Lev: ☑ RO ☐ 3.5* SRO ☑ 3.6*

LP Number: 0707-42

LP Objective: 03.06

Containment pressure response and different scenarios

Question So: New

Referen: LP 0707-42 page 20

Attachme: None

Commen: OPPD Comment - Only correct choice discusses equipment hatch

Question Nu: 120

System/Mod: 103000

Containment System

Stem: Knowledge of containment system design feature(s) and/or interlock(s) which provide for the following:

KANo: K4.06

Description: Containment isolation system

Quest

Which one of the following will result in a Containment Isolation Actuation Signal (CIAS)?

A. Containment Radiation Monitor, RM-050, fails high and alarms.

B. Pressure in both steam generators drops below 500 psia due to a steam line break downstream of the MSIVs

C. Pressurizer pressure channel B/PIA-102Y fails low

D. Inadvertent actuation of ESF relay, 86A/CPHS,

Answe: D

CFR Sect: 41.7

Higher Lev: ☑

RO: ☑ 3.1

SRO: ☑ 3.7

LP Number: 0712-14

LP Objective: 01.04

EXPLAIN how each prime and backup actuation signal is developed.

Question So: New

Referen: ESC STM page 20

Attachme: None

Commen:

Question Nu: 121

System/Mod: CE-A11

Stem:

RCS Overcooling

KANo: 2.1.14

Description: Knowledge of system status criteria which require the notification of plant personnel.

Quest

What actions must be taken, according to technical specifications, if the allowable cooldown rate is exceeded?

A. Immediately stabilize pressure and temperature. Then notify the NRC to perform an analysis to determine the effects of the out of limits condition on the fracture toughness properties of the RCS.

B. Immediately restore pressure and temperature to within the limits. Then notify plant management to perform an analysis to determine the effects of the out of limits condition on the fracture toughness properties of the RCS.

C. Immediately stabilize pressure and temperature. Notify NRC. Prior to restart, remove and test weld material samples from capsules for fracture toughness properties.

D. Immediately restore pressure and temperature to within the limits. Then notify Plant Management. Prior to restart, remove and test weld material samples from capsules for fracture toughness properties.

Answe: B

CFR Sect: 43.5 / 45.12

Higher Lev: ☐ RO ☐ 2.5 SRO ☑ 3.3

LP Number: 0762-08

LP Objective: 05.00

Given a copy of Technical Specifications, APPLY the requirements to a given condition covered by an LCO.

Question So: New

Referen: Tech spec 2.1.2 (5)

Attachme: None

Commen:

NRC Comments - Add notification requirement to who?
Question changed 6/4/01

Question Nu: 122

System/Mod: CE-A11

Stem: Ability to operate and / or monitor the following as they apply to the (RCS Overcooling)

RCS Overcooling

KANo: AA1.02

Description: Operating behavior characteristics of the facility.

Quest

What are the potential consequences of defeating the automatic rampdown feature of the main feedwater regulating valves?

A. AFAS actuation following a reactor trip

B. A steam generator water hammer following a reactor trip

C. A loss of RCS heat removal following a reactor trip

D. Overcooling of the RCS following a reactor trip

Answe: D

CFR Sect: 41.7 / 45.5 / 45.6

Higher Lev: ☑

RO: ☑ 3.2

SRO: ☐ 3.4

LP Number: 0711-11

LP Objective: 02.05

EXPLAIN the operation of the Feedwater Control System following a turbine trip.

Question So: New

Referen: SHB 0715-20 page 12

Attachme: None

Commen:

Question Nu: 123

System/Mod: CE-A13

Stem: Ability to operate and / or monitor the following as they apply to the (Natural Circulation Operations)

Natural Circulation Operations

KANo: AA1.01

Description: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Quest

The plant tripped from 100% power following a transient involving the loss of forced flow from all four reactor coolant pumps.
The following conditions exist:

RCS pressure is 2000 psia
Pressurizer level is 50%
Steam Generator Pressures are 900 psia
Steam Generator Wide Range Levels are 40%
Hot leg temperatures are 575F
Cold leg temperatures are 532F

Which one of the following actions would be most effective in enhancing natural circulation?

A. Raise RCS pressure

B. Raise Pressurizer Level

C. Raise Steam Generator Pressures

D. Raise Steam Generator Levels

Answe: D

CFR Sect: 41.7 / 45.5 / 45.6

Higher Lev: ☑

RO: ☑ 3.3

SRO: ☐ 3.6

LP Number: 0715-16

LP Objective: 01.07

EXPLAIN the plant response to the development of natural circulation.

Question So: New

Referen: SHB 0715-16 page 15

Attachme:

Commen

OPPD Comment - Give RCS temperature to show adequate subcooling makes choice A clearly wrong.
Temperatures added 6/4/01

Question Nu: 124

System/Mod: CE-A16

Stem: Knowledge of the operational implications of the following concepts as they apply to the (Excess RCS Leakage)

Excess RCS Leakage

KANo: AK1.01

Description: Components, capacity, and function of emergency systems.

Quest

In Section III of AOP-22, Reactor Coolant Leak Within Charging Capacity, after verifying RCS pressure less than 1700 psia the operator is directed to block PPLS.

Of the following, which ONE is the reason for this direction?

A. To allow better RCS pressure control by preventing the injection of cold SIRWT water.

B. To enable Low Temperature Overpressure Protection circuitry.

C. To maintain the normal boration path available during Steam Generator depressurization.

D. To prevent initiation of safety injection with HPSI stop-and-throttle criteria already met.

Answe: B

CFR Sect: 41.8 / 41.10 / 45.3

Higher Lev: ☐

RO: ☑ 3.2

SRO: ☑ 3.5

LP Number: 0717-22

LP Objective: 01.02

Describe how the plant responds to a Reactor Coolant Leak in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Question So: Bank — 0717-22 1.2 001

Referen: AOP-22 page 44

Attachme:

Commen:

Question Nu: 125

System/Mod: CE-E05

Stem: Knowledge of the interrelations between the (Excess Steam Demand) and the following:

Excess Steam Demand

KANo: EK2.01

Description: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Quest

Which one of the following statements is true regarding HPSI stop and throttle?

A. HPSI flow should be reduced as soon as a UHE is diagnosed

B. HPSI flow should be reduced prior to the affected steam generator drying out in an UHE.

C. HPSI flow should not be reduced until all stop and throttle criteria are met in a UHE.

D. HPSI flow should not be reduced during a UHE.

Answe: C

CFR Sect: 41.7 / 45.7

Higher Lev: ☐

RO: ☑ 3.3

SRO: ☐ 3.6

LP Number: 0718-15

LP Objective: 03.01

GIVEN a copy of the HPSI Stop and Throttle Criteria floating step, EXPLAIN the four indications used to determine the HPSI Stop and Throttle Criteria are met.

Question So: Bank — 0718-15 3.1 001 one distractor changed

Referen: SHB 0715-0 page 15

Attachme: None

Commen:

Question Nu: 126

System/Mod: CE-E09

Stem:

Functional Recovery

KANo: 2.1.14

Description: Knowledge of system status criteria which require the notification of plant personnel.

Quest

You, as CRS, have entered EOP-20 due to multiple events. When would you notify the Shift Chemist to sample the steam generators using CH-SMP-SE-015, "Steam Generator Sampling - Room 60" ?

A. During any entry into EOP-20

B. During an entry into EOP-20 where secondary radiation monitors are in alarm

C. During an entry into EOP-20 where SGIS has actuated

D. During an entry into EOP-20 where CIAS has actuated

Answe: D

CFR Sect: 43.5 / 45.12

Higher Lev: ☐ RO ☐ 2.5 SRO ☑ 3.3

LP Number: 0718-18

LP Objective: 01.03

STATE the entry conditions for EOP-20.

Question So: New

Referen: EOP-20 pg 5

Attachme: None

Commen: NRC Comment - Required from memory?

Question Nu: 128

System/Mod: 000000

Stem:

Generic Knowledges and Abilities

KANo: 2.4.10

Description: Knowledge of annunciator response procedures.

Quest

The plant is in mode 3 and surveillance tests are being performed. Annunciator window "flags" are being used in accordance with the OPD 6-04, "Annunciator Marking".?

Which one of the following situations is unexpected and requires use of the Annunciator Response Procedures?

A. A red flagged annunciator window is unlit

B. A blue flagged annunciator window is unlit

C. A green flagged annunciator window is lit

D. An unflagged annunciator window is lit

Answe: D

CFR Sect: 41.10 / 43.5 / 45.13

Higher Lev: ☐ RO ☐ 3.0 SRO ☑ 3.1

LP Number: 0762-11

LP Objective: 01.00

USE the ARPs to diagnose plant problems.

Question So: New

Referen: OPDs

Attachme: None

Commen

SRO only question added after NRC review. (question 16 was made RO only)

Need to verify choices with procedure

Changed again on 6/12/01 to ensure 3 incorrect distractors.